

1 NATIONAL FOOTBALL LEAGUE

2 -----X

3 IN THE MATTER OF:

4

5 THOMAS BRADY

6

7 -----X

8 APPEAL HEARING

9

10 Tuesday, June 23, 2015

11 9:28 a.m.

12

13

14 National Football League

15 345 Park Avenue

16 New York, New York 10154

17

18

19 BEFORE: ROGER GOODELL, COMMISSIONER

20

21

22 REPORTED BY:

23 JOSHUA B. EDWARDS, RDR, CRR, CLR

24 NOTARY PUBLIC OF THE STATE OF NEW YORK

25

1 A P P E A R A N C E S:

2

3 NATIONAL FOOTBALL LEAGUE
 345 Park Avenue
4 New York, New York 10154
 BY: ROGER GOODELL
5 Commissioner
 JEFFREY PASH, ESQ.
6 Executive Vice President
 ADOLPHO A. BIRCH III, ESQ.
7 Senior Vice President of Labor Policy and
 Government Affairs

8

9

10 COVINGTON & BURLING LLP
 Attorneys for the NFL
11 The New York Times Building
 620 Eighth Avenue
12 New York, New York 10018
 BY: GREGG LEVY, ESQ.

13

14

15 NATIONAL FOOTBALL LEAGUE MANAGEMENT COUNCIL
 345 Park Avenue
16 New York, New York 10154
 BY: KEVIN K. MANARA, ESQ.
17 Senior Labor Relations Counsel

18

19

20 AKIN, GUMP, STRAUSS, HAUER & FELD LLP
 Attorneys for the NATIONAL FOOTBALL LEAGUE
 MANAGEMENT COUNCIL
21 1333 New Hampshire Avenue, N.W.
 Washington, D.C. 20036
22 BY: DANIEL L. NASH, ESQ.
 STACEY EISENSTEIN, ESQ.
23 ELIZABETH ENGLAND, ESQ.
 GREGG KNOPP, ESQ.

24

25 (Appearances continued.)

1 A P P E A R A N C E S (continued):

2

3 NATIONAL FOOTBALL LEAGUE PLAYERS ASSOCIATION
1133 20th Street NW
4 Washington, D.C. 20036
BY: TOM DePASO, ESQ.
5 General Counsel
HEATHER M. McPHEE, ESQ.
6 Associate General Counsel

7

8

WINSTON & STRAWN LLP
9 Attorneys for the NATIONAL FOOTBALL LEAGUE
PLAYERS ASSOCIATION
10 200 Park Avenue
New York, New York 10166
11 BY: JEFFREY KESSLER, ESQ.
DAVID GREENSPAN, ESQ.
12 JONATHAN AMOONA, ESQ.
BENJAMIN SOKOLY, ESQ.
13

14

15 PAUL, WEISS, RIFKIND, WHARTON & GARRISON LLP
Lead investigators
1285 Avenue of the Americas
16 New York, New York 10019
BY: LORIN L. REISNER, ESQ.
17 DOUGLAS M. BURNS, ESQ.
18 AMY E. GOLD, ESQ.

19

20

GIBSON, DUNN & CRUTCHER LLP
21 Attorneys for TOM BRADY
1050 Connecticut Avenue, N.W.
22 Washington, DC 20036
BY: ANDREW TULUMELLO, ESQ.
23

24

25 (Appearances continued.)

1 A P P E A R A N C E S (continued):

2

3 YEE & DUBIN LLP
4 Agents for TOM BRADY
5 725 S. Figueroa Street, Suite 3085
6 Los Angeles, California 90017
7 BY: DONALD H. YEE, ESQ.
8 STEPHEN L. DUBIN, ESQ.

7

8 NFL PLAYERS ASSOCIATION WITNESSES:

9 THOMAS BRADY
10 EDWARD SNYDER
11 TROY VINCENT
12 THEODORE V. WELLS, JR., ESQ.

11

12

13 NFL MANAGEMENT COUNCIL WITNESSES:

14 ROBERT CALIGIURI
15 DANIEL MARLOW
16 DUANE STEFFEY

16

17

18

19

20

21

22

23

24

25

1 I N D E X

2

3 OPENING STATEMENTS PAGE

4 MR. KESSLER 7

5 MR. NASH 28

6

7 REPLY

8 MR. KESSLER 42

9

10

11 E X A M I N A T I O N S

12

13 NFL PLAYERS ASSOCIATION WITNESSES

14 **Witness** **Direct** **Cross** **Redirect** **Recross**

15 TOM BRADY 47 100 139 143

16 EDWARD SNYDER 150 194

17 TROY VINCENT 227 251 255 259

18 THEODORE WELLS 261 321 340

19

20 NFL MANAGEMENT COUNCIL WITNESSES

21 **Witness** **Direct** **Cross** **Redirect** **Recross**

22 ROBERT CALIGIURI 345 373 402 408

23 DUANE STEFFEY 411 427 438

24 DANIEL MARLOW 439 448 454

25

1 New York, New York

2 Tuesday, June 23, 2015

3 9:28 a.m.

4 * * *

5 COMMISSIONER GOODELL: Good morning and
6 welcome. As you can see, we have a court reporter
7 here, so there will be a formal record of all of the
8 proceedings this morning. And we just ask you all
9 to speak up and try to avoid speaking across from
10 one another so we have the correct record.

11 We all know why we are here this morning.
12 This is in response to an appeal filed by Tom Brady.
13 I'm particularly interested in hearing anything Tom
14 has to say and I look forward to hearing directly
15 from him. You also heard and got a letter from
16 Gregg Levy on how we will proceed this morning so
17 that hopefully all of those issues have been
18 addressed and we will follow those procedures as
19 best we can.

20 I will obviously oversee this, but as you all
21 know, I am not an attorney. I am somebody that will
22 focus on the testimony and I will ask Gregg Levy to
23 administer the proceedings this morning. Obviously
24 we will confer from time to time, and so I will ask
25 Gregg to take the lead on that front. I will

1 receiving the evidence and that's what we intend to
2 do today.

3 I am compelled to say at the opening that as
4 you know, we had moved for you to recuse yourself.
5 We understand you have rejected that. We are
6 proceeding on that basis without waiving our
7 objection regarding that.

8 What I'm now going to turn to first is the
9 main evidence that's going to be presented to you
10 today, and I know you've indicated that's what you
11 are particularly anxious to hear and what that
12 evidence is going to consist of. But to give you
13 context for this, I'm compelled to note one point at
14 the outset.

15 I understand from communications that you
16 have issued in this case that you have basically,
17 you and Mr. Vincent together, whatever the
18 combination was, have relied upon the conclusions,
19 the factual conclusions of the Wells report and you
20 mentioned in your decision you did not independently
21 look at the notes and the investigators.

22 You didn't have any witnesses for yourselves.
23 You are essentially relying on Wells' conclusions.
24 I'm compelled to note at the beginning that the
25 conclusion of the Wells report with respect to

OPENING STATEMENT/KESSLERPage 7

1 interject, obviously, as I feel necessary.

2 So Gregg, do you have anything you want to
3 add?

4 MR. LEVY: The only thing I want to add is
5 that counsel, whoever is speaking, identify
6 themselves so the record is clear for the court
7 reporter.

8 COMMISSIONER GOODELL: Do we have any
9 objections that need to be made?

10 MR. KESSLER: I think we are ready to go
11 unless you want us to do appearances.

12 MR. LEVY: I don't think that's necessary.
13 If you intend to give an opening?

14 MR. KESSLER: Yes.

15 MR. LEVY: Let's get started.

16 MR. KESSLER: Yes. Good morning,
17 Commissioner.

18 COMMISSIONER GOODELL: Good morning, Jeffrey.

19 MR. KESSLER: On behalf of Tom Brady and the
20 NFLPA, we are happy to have an opportunity to
21 present to you what we believe are very important,
22 convincing and to some degree new grounds for
23 overturning the discipline that has been imposed.
24 We have heard your public statements that you have
25 an open mind and that you are interested in

OPENING STATEMENT/KESSLERPage 9

1 Mr. Brady is that he was generally aware of
2 something.

3 It is our position that there is no policy,
4 no precedent, no notice that has ever been given to
5 any player in the NFL that they could be subject to
6 any type of discipline, whether it's conduct
7 detrimental discipline or whether it is under the
8 policy that has been invoked here for being
9 generally aware of something.

10 It would be the equivalent if a player knew
11 or was generally aware that another player was
12 taking steroids, okay, and had nothing to do with
13 it, but had some general awareness of that. The
14 only person who was punished under the Steroid
15 Policy is the person who was taking the steroids.
16 You don't get punished for being generally aware
17 that somebody else is liable.

18 If the League wants to change that, of
19 course, you could promulgate new policies or
20 something else, but we really believe that, (A),
21 there is no such policy. It's not in the CBA. It's
22 not in the Personal Conduct Policy. It's not in
23 the -- it's not in the policy cited here. It's not
24 in any precedent of conduct detrimental and no
25 player has ever been punished for such a thing.

1 The reason I'm making this point is the
2 reason we are about to tell you why we think the
3 Wells report is wrong, we think the Wells report
4 doesn't answer or doesn't provide the basis for any
5 discipline of the player.

6 This is wholly apart from what you did on the
7 team, because on the team, the Wells report made
8 very different findings, that it was more probable
9 than not that something occurred and that's what
10 they said and the team was responsible. But for the
11 player, it was very, very different and I assume
12 while Mr. Wells testifies, I assume that was a
13 deliberate decision he made.

14 Had he been able to conclude that it was more
15 probable than not that Mr. Brady participated in any
16 kind of inappropriate activities, that's what he
17 would have said in his findings. He did not say
18 that. So before I get into the facts, I just felt
19 compelled to make that context point, which we think
20 is very important.

21 Now let me talk about the evidence we are
22 going to present to you today. You are going to
23 first hear from Tom Brady who you said you want to
24 hear from. Tom will answer every question about
25 this matter that I will ask him, that the NFL's

1 touch and feel of the football. You will remember
2 in 2006, there was a movement by all the
3 quarterbacks to prepare their footballs. None of
4 that had to do with ball pressure, and he will
5 explain that.

6 And, in fact, it will be clear in the
7 evidence it had to do with the same way a baseball
8 player works in his glove to a right feel to soften
9 the leather to make it feel right for that
10 quarterback. He's never been particularly concerned
11 about pressure at all except in one game, and there
12 are -- things happen that create appearances that
13 are not correct, which was the Jets game in 2014.

14 And what happened in the Jets game, you will
15 hear is that he didn't even know there was an issue
16 of pressure. What happened, the balls felt really
17 big and fat and round to him like he had never felt
18 them before, okay.

19 And, yes, he complained at that time to
20 Mr. Jastremski, "What's wrong with the ball?
21 There's something wrong with the balls," and
22 ultimately found out the next day from
23 Mr. Jastremski -- and this is important -- that
24 while Mr. Jastremski had tried to have the balls
25 set, it turns out at 13, which is well within the

1 counsel will ask him and if you have any questions
2 or Mr. Levy has any questions, he's prepared to
3 answer anything relevant to this case, as, by the
4 way, he was with Mr. Wells.

5 And I note that Mr. Wells made it very clear
6 both in his report and public statements that he was
7 completely willing to answer any question that Ted
8 Wells posed to him -- there has never been a refusal
9 by Tom -- or anyone on Mr. Wells' team asked of him
10 about that.

11 What Tom will tell you under oath is that he
12 never asked anyone to deflate footballs below any
13 kind of limit of the League. He never authorized
14 anyone to do that and he's not aware or does he have
15 any knowledge that anyone did that. He will tell
16 you that truthfully, honestly. You will get a
17 chance to look him in the eye and see what you think
18 about that.

19 But we believe you are going to conclude when
20 you hear this evidence that he is not somebody who
21 was responsible for anything that did or did not
22 happen at the Patriots' facility regarding the
23 footballs.

24 And, in fact, he will testify and explain
25 that his concern about footballs has to do with the

1 League limit, they were registered at 16, which is
2 an astounding amount of pressure.

3 No one knows how they got to 16. That's what
4 he noticed. That's the only time he's ever even
5 thought about this issue of pressure. And that when
6 it came to the championship game, he had no idea
7 what was going on with the pressures of the balls.
8 He felt nothing unusual.

9 He didn't feel a difference in the first half
10 to the second half on the balls because he didn't
11 know what had gone on was the balls had more air put
12 into them at the halftime, as you know. None of
13 that affects him. He didn't know of it. He wasn't
14 generally aware of it.

15 We think you are going to find him to be
16 credible on this issue. And we urge you to ask him
17 any questions that you have about that.

18 We also are going to then submit the
19 Declaration of Robert Kraft and Mr. Kraft would have
20 been here to testify. You probably know he's in
21 Israel. So he was not able to be here to testify.

22 But Mr. Kraft wanted to put in evidence here
23 to indicate that his discussions with Tom about this
24 and what he believes about Tom's credibility in
25 terms of his relationships over a very long period

1 of time and what happened here, so we hope you will
 2 give weight and consideration to somebody who we
 3 know you trust his judgment very much and we know
 4 that no one knows Tom Brady, at least in the NFL
 5 better than Robert Kraft, although I am sure there
 6 are, obviously in his personal life, that know Tom
 7 Brady better than Mr. Kraft does.

8 We are also going to put in a declaration
 9 from a forensic person who dealt with the issue of
 10 e-mail and texts. And you know from your decision
 11 that there was an aspect of the discipline. We
 12 don't know how much -- and I will talk about them in
 13 a second -- that was exacerbated in the minds of
 14 Mr. Vincent in his letter for a failure to cooperate
 15 in providing these e-mails and texts.

16 First of all, you are going to hear from Tom
 17 that the only reason he didn't provide that is
 18 because his lawyers told him it wasn't proper or
 19 necessary and he just did what his lawyers and
 20 agents told him. He would have been happy to
 21 produce them.

22 Number two, there were no incriminating texts
 23 being withheld or e-mails, and there never have been
 24 any incriminating texts or e-mails. And now he has
 25 gone through and produces exactly what Ted Wells had

1 was the Dean of the Chicago Business School. He is
 2 one of the most respected academic people in this
 3 country, and particularly his statistics expertise
 4 is second to none. He worked with a team of people
 5 to study the testing in the Wells report and what
 6 that shows.

7 And what he is going to explain and this is
 8 not, by the way, the fault of Mr. Wells, it's not
 9 the fault of Exponent, okay, there was simply so
 10 many unknowns about how the testing was done -- and
 11 I am going to explain that in a second -- that
 12 nobody is able to give an opinion as to whether
 13 these balls were tampered with or not.

14 And the reason is as follows, and I will do
 15 this in my very nonscientific way. We now all know
 16 that there's something called the Ideal Gas Law.
 17 And what that means is all balls deflate when they
 18 go from hot weather to cold weather, to make it very
 19 simple. That's one of the factors. So the Colts'
 20 balls went to lower pressure. The Patriots' balls
 21 went to lower pressure. That just happens. So the
 22 mere fact that a ball is tested at lower pressure
 23 doesn't tell you anything. It doesn't tell you
 24 whether or not there's been any tampering. What you
 25 have to come up with is, can you figure out whether

1 asked for at the time that existed at the time and
 2 exists today.

3 Whatever is there has been there and what
 4 does it show? It shows exactly what's in the Wells
 5 report. There was nothing being withheld. I mean,
 6 can you look at it and say, gee, why didn't he just
 7 produce it? He was following the advice of his
 8 lawyers and agents at the time. And part of the
 9 issue is that when Mr. Wells was asked to provide
 10 authority for why he was entitled to look at these
 11 e-mails and things, no authority involving players
 12 was ever cited.

13 And no one ever told his lawyer, agent or
 14 Mr. Brady that if he didn't provide it, that somehow
 15 that was going to be a lack of cooperation with a
 16 penalty. Now, we can ask why that wasn't done. It
 17 was there. But he certainly was never told that,
 18 that there was that type of obligation imposed upon
 19 him in that way. That's going to be provided by
 20 declaration from the forensic people who looked at
 21 that.

22 Then we are going to have Mr. Ted Snyder
 23 testify who was the Dean of the Yale School of
 24 Management, who is one of the leading experts in
 25 statistical analysis in the world. He previously

1 the evidence shows that natural causes don't explain
 2 this in a way that a researcher, a tester would
 3 agree, which is something called statistically
 4 significant and it makes a difference?

5 What it turns out is there are so many
 6 unknowns which are in the Wells report. The Wells
 7 report will say we don't know the exact time that
 8 the balls were tested. We don't know the exact
 9 order in which the balls were tested. We don't know
 10 exactly if Gauge A was done, the so-called logo
 11 gauge or the non-logo gauge.

12 We don't know the temperature in the room at
 13 the time the ball was tested, a whole variety of
 14 factors, which would directly affect this result.
 15 So we know there are unknowns. So what did the
 16 Snyder team do? They said, okay, we are just going
 17 to test the different scenarios.

18 What happens if you vary this which is an
 19 unknown? What happens if you vary this which is an
 20 unknown? And what they found is the result change
 21 in such a way, in other words, the unknowns matter
 22 that the only conclusion you could come to is that
 23 you can't tell. You can't come to a statistically
 24 significant result that is reliable here.

25 Now, why did this happen? And again, this is

1 something, sometimes you learn about this. It is my
2 belief that the League has never thought about the
3 Ideal Gas Law, frankly, before this thing. I dare
4 say that there's not a referee in the NFL who knew
5 anything about it.

6 I don't think there is anyone in Game
7 Operations who knew anything about it. The original
8 pressure rule goes back to 1920. I don't know when
9 the Ideal Gas Law was first articulated, whether it
10 was known or not because of that. No procedures are
11 in place.

12 So think of drug testing. When we do drug
13 testing, we have A samples and B samples. We have
14 procedures for handling. We have chain of custody.
15 We know exactly what should be tested. You can tell
16 that somebody tests positive or tests negative.
17 With respect to this issue of balls, there are no
18 procedures to figure out if a lower pressure means
19 it was tampered with or not and the result is none
20 of this was recorded.

21 So no one wrote down what is the temperature
22 in the room? That matters. No one wrote down,
23 says, oh, were the Colts' balls, you know, inflated?
24 Were the Colts' balls tested after the Patriots'
25 balls were inflated or before? Because it matters

1 Mr. Vincent who will testify about that.

2 We are also going have Mr. Wells testify,
3 because I think he will candidly admit -- because I
4 think Ted Wells is an honest person -- what he knew
5 and what he didn't know and what he was able to look
6 at and what he wasn't able to look at and the
7 limitations of what he could find here with respect
8 to that. And so we will spend some time with
9 Mr. Wells.

10 Given my four-hour limitation and the need to
11 reserve time for cross-examination, I don't know
12 what the NFL is going to do with witnesses, whether
13 they are going to call Exponent, which they said
14 they might, any of those witnesses, those are all
15 the witnesses I think we are going to be able to
16 call and still have enough time in order to have
17 cross-examination time at all.

18 So that's going to be the evidence you are
19 going to hear from our side. And we think when you
20 hear all of this, you are going to look at this if,
21 as you said, with an open mind, and say, this is
22 really not a basis to suspend Mr. Brady who, in
23 every other way, obviously, has been one of the most
24 exemplary citizens in the history of the NFL.

25 This is not somebody who has ever violated

1 on time. Time is a huge impact.

2 Why? Very simply, when you come back into
3 the warm room, guess what happens? The balls heat
4 back up. So you have to know every minute that you
5 are in the room affects the balls heating back up,
6 so the pressure is going back up. So these are the
7 most essential things. So there were no procedures.
8 So because of that, you can't tell.

9 And our view is, if this is something that
10 needs to be approved and fixed, it should be, but
11 you can't punish a player for that. You can't just
12 assume, well, we didn't collect any of the proper
13 information for this, so we are just going to assume
14 that, (A), the player was generally aware, and (B),
15 that something happened. In our view, this just
16 isn't a basis for doing this.

17 Based on that testimony, we are also going to
18 call Mr. Vincent who we understand we now could call
19 about game day to talk about the procedures so you
20 could see why this is missing and what maybe should
21 have been done versus what was done.

22 And, again, I'm not ascribing blame to
23 anyone. I don't think anyone knew about the Ideal
24 Gas Law and knew this had to be accounted for. It's
25 just the facts were the facts. We are going to have

1 any NFL Policy. This is not somebody who has ever
2 done anything except do his best for his team and
3 for this League in every way imaginable. And we
4 don't believe this would be an appropriate basis for
5 this discipline.

6 Finally, briefly, I know Mr. Levy has said we
7 should put our legal arguments in briefs. I'm not
8 going to spend time on them much at all, but I do
9 want to note them here, I feel on this record before
10 it closes, I have to note what our legal arguments
11 are going to be. The first one I already mentioned
12 is generally aware is not a proper standard for
13 players. There is no precedent for it. There is no
14 notice for it.

15 And we believe that without notice, which is
16 a very, very important principle here, one of the
17 reasons it's such an important principle is because
18 we know from Judge Doty's decision in Peterson, that
19 at least after of now unless the Eighth Circuit
20 overturns it, it is the established law that players
21 have to have notice as to what the policies are that
22 apply to them and what they are going to be held
23 responsible for.

24 There is no way that there is any argument
25 that Mr. Brady knew that there was some general

1 awareness standard, before you get to anything else.
 2 But the notice argument has three layers. The first
 3 one is, "Even if the NFL policies applied to him
 4 that are at issue, there was no notice because of
 5 generally aware."
 6 But let's assume generally aware was the
 7 standard. I will get by that. The second thing was
 8 the policy that was invoked, which is the integrity
 9 of the game policy as you know, is directed, and
 10 this is in evidence -- is directed only at owners,
 11 head coaches, general managers, the club. It's
 12 never given to the player. And, in fact, it's clear
 13 on its face who its given to.
 14 You probably know, Commissioner, every year,
 15 the players are given certain policies. For
 16 example, they are given the Personal Conduct Policy.
 17 They are given team rules, okay. They even sign
 18 acknowledgements as to which policies they get. One
 19 policy they've never been given is this integrity of
 20 the game policy which talks about the balls.
 21 That's where -- that's exactly what Mr. Wells
 22 cited. He said my authority under this policy, it
 23 clearly applied to the club. It clearly applied to
 24 club personnel, you know, people who work at the
 25 club like GMs and coaches and equipment room men,

1 locker room people.
 2 We don't dispute any of that. But it was not
 3 a player policy. And therefore, neither Mr. Brady
 4 nor anyone else had any knowledge of this. Now how
 5 do I know this is correct? I know this is correct
 6 because not only is there no mention of this, but
 7 what you will also find out is that in the past, you
 8 have never looked at players for this issue.
 9 And I will give you an example. There was an
 10 incident last year involving the Minnesota Vikings,
 11 which I don't know if you are aware of or not, where
 12 the Minnesota Vikings heated the footballs during
 13 the game. And the League conducted an investigation
 14 and instructed the club -- first of all, they gave
 15 them a warning only. That was the only penalty that
 16 was imposed. And they said you can't do this. In
 17 fact, there is a specific rule about you can't --
 18 you can't heat the footballs during the games.
 19 Now, I would even have to agree as a player
 20 advocate that the player on that team, the
 21 quarterback probably was generally aware that the
 22 ball felt warmer in freezing cold, okay. There
 23 wasn't even an investigation of that quarterback,
 24 let alone any thought of discipline. And why?
 25 Because the integrity of the game policy didn't

1 apply to players.
 2 We had another incident a few years ago
 3 involving the New York Jets. So in the New York
 4 Jets Case, it involved -- this is NFL Exhibit 73 --
 5 it involved Mr. Cortez Robinson, who is a club
 6 employee of the Jets. Ironically, it's a Jets game
 7 against the Patriots. This was on November 24,
 8 2009.
 9 And in that game, it was found that he had
 10 attempted to use unapproved equipment to prep the
 11 kick balls, the K-balls prior to the kickoff. And,
 12 in fact, he was disciplined by the Vice President of
 13 Football Operations, Mr. Ron Hill, okay. And he
 14 said because your attempt to use this could be
 15 viewed as an attempt to gain a competitive
 16 advantage.
 17 So what happened? He was suspended for the
 18 rest of the season, the equipment person was. The
 19 player, the kicker, wasn't even investigated. Why?
 20 Because this policy doesn't apply to the player.
 21 And, in fact, it's interesting because Mr. Hill was
 22 the Vice President of Football Operations.
 23 He's the right person to interpret this
 24 policy. The Competitive Game Policy says if you
 25 know of any violations, please tell, you know, the

1 Vice President of Football Operations. Today that's
 2 Mr. Vincent in terms of that, I believe. They are
 3 not people who discipline players ordinarily.
 4 You know, we know under the Conduct
 5 Detrimental Policy other people discipline players'
 6 personal conduct. It's not the Vice President of
 7 Game-Day Operations, because these have never been
 8 directed at players. There is no history. And I
 9 can say to you without equivocation there has never
 10 been a player in the history of the NFL who has been
 11 suspended for anything having to do with equipment.
 12 There is another player policy -- there is
 13 one player policy -- there's a player policy
 14 involving uniforms and things, which I will talk
 15 about, not that there is no policy. So
 16 Commissioner, this you may recognize. This is
 17 called League Policies For Players (indicating).
 18 This is what the players are given.
 19 And it's interesting. It said "for players."
 20 What is not in here is the competitive integrity
 21 rule that Mr. Wells used in his report or anything
 22 about that. So we looked through those League
 23 Policies For Players and said is there anything that
 24 could arguably be applicable to this?
 25 And the only thing that we have been able to

1 find that could possibly apply to this is that there
2 is something called, on page 15 of this policy,
3 "Foreign Substances on Body Uniform." Has to do
4 with, like, receivers putting Stickum on their
5 gloves, things like that.

6 And then it says "Other Uniform Equipment
7 Violations," okay. And it doesn't mention balls at
8 all, but I'm trying to be creative. Was there
9 anything that could possibly apply to this? And
10 what it specifically says under this thing is the
11 first offense will be a fine. That's what it says.

12 This is Mr. Brady's -- we don't believe it
13 did anything, but this would be a first offense even
14 if it came under this policy, which we don't believe
15 this policy applies either, because there is nothing
16 here about the balls. And it's clear Mr. Wells
17 didn't use this policy; he used the other one. But
18 even this policy would have it.

19 And by the way, the fine is \$5,512 for the
20 first offense. That's it. That's the only notice
21 that a player has ever had about anything regarding
22 equipment in the players' policy in terms of that.

23 So we believe both under the established rule
24 of notice and what's called fair and consistent
25 treatment, I know that you may remember from bounty

1 discipline. We think that also, unfortunately,
2 raises another improper delegation issue.
3 We don't think under the CBA paragraph 15 of
4 the player contract or Article 46 or, frankly, even
5 under the NFL Constitution that delegating the
6 fact-finding to someone outside the League and just
7 having the League or Mr. Vincent, either you or
8 Mr. Vincent decide the penalty based on someone
9 else's facts was appropriate under, at least, the
10 legal system as we understand it there.

11 So I'm not going to say any more about it.
12 But I do want to note it and we will address that
13 further in our post-hearing briefs. Thank you for
14 bearing with me in doing this. I probably used more
15 time than I wanted to given my limitations, but
16 thank you very much.

17 MR. NASH: I will try to be just as brief and
18 maybe even briefer. This is a procedure under the
19 Collective Bargaining Agreement, Commissioner, as
20 you know. It's a matter that obviously is very
21 serious. And starting with the delegation point
22 that Jeffrey just said, this also is a fact-finding
23 proceeding today.

24 You are here to hear evidence, as you just
25 said. And so following this hearing, it will be up

1 and from Ray Rice, in the cases, and I know you are
2 not a lawyer, but generally, it's been held by all
3 of those arbitrators that fair and consistent
4 treatment is the rule.

5 And, in fact, I think you have acknowledged
6 this at various times yourself that there is a need
7 for consistency and notice and fairness. I don't
8 think you have yourself ever disputed notice,
9 fairness and consistency.

10 We don't think it could come under notice.
11 We don't think it could come under fairness. We
12 don't think it could come under consistency in terms
13 of these different issues.

14 So, finally, I would just note on the last
15 issue of delegation, I understand you've already
16 ruled, I guess, that Mr. Vincent's role was proper,
17 so I am not going to reargue that. I understand --
18 if that's not correct, you can advise me -- but I
19 understand from your two decisions you have already
20 ruled on that.

21 I note there's another delegation issue we
22 believe arises so I want to mention that, because it
23 is clear to us now after reading the letter
24 yesterday that there was no independent fact-finding
25 by either Mr. Vincent or you in imposing the initial

1 to you to make a judgment under the CBA regarding
2 two issues. The first is whether Mr. Brady
3 conducted conduct detrimental or engaged in conduct
4 detrimental; and the second, assuming you make that
5 conclusion, what is the appropriate discipline?

6 Now, as to the first point, I'm not sure what
7 Mr. Kessler was saying about fact-finding. But I
8 will say that under the CBA, there is no question
9 that you can rely on the independent investigator in
10 making the judgment, your judgment as to whether
11 Mr. Brady engaged in conduct detrimental.
12 In fact, this is something that you and your
13 predecessors have always done. It would not be
14 reasonable to suggest that you would be the person
15 to interview every witness or to look at every
16 document every time an issue of potential conduct
17 detrimental arose.

18 This case involves an investigation that I
19 think was as thorough as any that has ever been
20 done. It was done by an investigator, Mr. Wells and
21 his colleagues, who is a person of unquestioned
22 integrity. He interviewed over 66 witnesses. He
23 reviewed documents.

24 And importantly, he gave Mr. Brady and his
25 counsel as well as the Patriots and their counsel

1 every opportunity to provide evidence, including
 2 some of the arguments that you heard today, and in
 3 fact considered these. Everything I think that you
 4 just heard Mr. Kessler describe about the evidence
 5 that you are going to hear today are things that
 6 were considered in the report and they are addressed
 7 in the report.

8 So we are not going to put on any evidence,
 9 any particular evidence beyond the report today,
 10 except we may have some witnesses in rebuttal and we
 11 will see what they have to say. But I will say just
 12 generally that all of these points that were made
 13 have been made and have been considered in the
 14 report.

15 One other point that I think is important,
 16 and there has been a lot that has been said about
 17 the Wells report, but as I think you are aware and
 18 Mr. Wells is here to tell you, this was truly an
 19 independent investigation. He was not given a task
 20 to find any particular conclusion, nor would he have
 21 agreed to do the investigation under those
 22 circumstances.

23 His investigation, as he will tell you, was
 24 conducted to find the truth, to find the facts and
 25 that's exactly what he did. And he did it in a

1 report whether you, in your discretion, believe that
 2 he engaged in conduct detrimental and it's your
 3 judgment alone under the Collective Bargaining
 4 Agreement.

5 As far as the arguments whether Mr. Brady was
 6 under notice, I think Mr. Kessler is conflating what
 7 was done in the Wells report with your ultimate
 8 judgment on conduct detrimental. And most
 9 importantly, I think there's a lot of evidence that
 10 you didn't hear about in what Mr. Kessler had to
 11 say.

12 I don't have any doubt that you will hear
 13 Mr. Brady come in and tell you, I think, probably
 14 what he told Mr. Wells, the things that Mr. Kessler
 15 said. But in considering his testimony, I think you
 16 have to consider it in the context of the other
 17 evidence that's in the report.

18 And I would suggest that the other evidence
 19 of Mr. Brady's involvement and the violation that
 20 occurred here, the conduct detrimental that occurred
 21 here is substantial. The evidence in the Wells
 22 report is not as was said in the notice of appeal,
 23 purely speculative or just circumstantial.

24 As the report itself says, the conclusions
 25 are based on substantial evidence. That includes

1 thorough manner and under the Collective Bargaining
 2 Agreement, you are entitled clearly to rely on that
 3 report as you are entitled and should rely on
 4 whatever it is that they want to present here today.

5 Most importantly, it will be up to you to
 6 listen to Mr. Brady and consider what he has to say.
 7 And then it's your judgment. Under the Collective
 8 Bargaining Agreement, it's your judgment. And as
 9 far as the argument about standard of proof or
 10 burden of proof, this is not a criminal trial. It
 11 is not a civil trial.

12 This is, as I said, a proceeding under the
 13 Collective Bargaining Agreement regarding a very
 14 important subject, conduct detrimental, the
 15 integrity of the game. I don't think there can be
 16 any reasonable dispute that the underlying issues
 17 here involving the integrity of the game. The
 18 conduct of the Patriots in this matter, as I think
 19 everyone is aware, called into question the
 20 integrity of the game.

21 And under the CBA, you are obviously
 22 authorized and it is your responsibility to address
 23 that. Whether it's more probable than not, it's
 24 your judgment to make, listening to Mr. Brady,
 25 considering all of the evidence that is in the Wells

1 the basic evidence that there is no -- I think there
 2 is no dispute that at the halftime of the AFC
 3 Championship Game, the footballs of the Patriots
 4 were deflated and they were deflated more than the
 5 Colts' footballs. I don't think there is any
 6 dispute about that.

7 There is going to be evidence, it sounds like
 8 today, from experts about what was the cause of
 9 that? But I would submit, Commissioner, that those
 10 arguments and those very points are all documented
 11 in the report considered by Mr. Wells and the two
 12 experts who he retained.

13 And on that point, I should say and he will
 14 tell you that Mr. Wells wanted to find any
 15 explanation other than conduct detrimental or a
 16 violation of the rules for what happened at the
 17 game. That's why he retained an expert. The expert
 18 was tasked to look into all of this.

19 In addition, Mr. Wells retained a second
 20 expert to also check the work of the first expert.
 21 Now, I'm not going to go through all the details of
 22 the Ideal Gas Law, but what I can say and the
 23 experts are all here that from Exponent, Mr. Marlow
 24 from Princeton, who is an expert in physics, what
 25 they will tell you is that they've considered all of

1 these points, the timing point that Mr. Kessler
2 raised, the change in temperature, and their basic
3 conclusion that, for the Patriots' balls, those
4 factors could not explain the level of deflation in
5 the balls, and that the more reasonable conclusion
6 was human intervention.

7 The human intervention part is something that
8 wasn't addressed at all just now by Mr. Kessler.
9 But there, again, the report contains substantial
10 evidence that the deflation of the footballs was
11 caused by human intervention. It's documented in
12 the report.

13 Mr. McNally broke protocol. He disappeared
14 from the locker room. Walt Anderson and the others
15 interviewed in the report all were unequivocal that
16 it was something that had never been done before by
17 Mr. McNally and shouldn't have been done.

18 There is also in dispute at first he didn't
19 say so, but ultimately Mr. McNally had to agree that
20 he went into the bathroom with the footballs,
21 clearly a breach of protocol. So there was
22 substantial evidence of human intervention.

23 And then on top of all of that are the texts
24 that are documented in the report of between
25 Mr. McNally and Mr. Jastremski. And by the way, I

1 his player contract. It's in his CBA. He knows
2 very well. It's in paragraph 15 of his player
3 contract that he is subject to suspension for
4 conduct detrimental.

5 Mr. Kessler talked about other cases
6 including the Rice case. But as Judge Jones said in
7 the Rice case, your authority to address this, these
8 kinds of situations is broad. It's the agreement
9 between the League and the Players Association.

10 And the Players Association and Mr. Brady
11 himself, all players are under notice that if they
12 engage in conduct detrimental, that you reasonably
13 conclude is conduct detrimental, that they are
14 subject to a suspension.

15 Again, this is not a minor, I would submit
16 the report does not show some minor rules violation,
17 some minor -- this is not and we will address all
18 this in our brief, but the Vikings' case that was
19 talked about, that was a ball boy who warmed up the
20 ball and was not aware of the rule.

21 That doesn't, I think, provide any defense
22 here for Mr. Brady and it certainly doesn't provide
23 any basis to ignore all of the other evidence in the
24 report.

25 On the argument about the failure to

1 think I heard some discussion that Mr. Brady was
2 either not aware of the inflation rules that applied
3 to footballs or his only concern was the surface or
4 the grip.

5 I think there's evidence in the report and I
6 think he would even say here today that he certainly
7 was aware that there was a minimum inflation level.
8 He knows what the rules are. This idea that he
9 didn't have notice that somebody purposely deflated
10 a football after the officials checked it was
11 somehow not a violation of the rules, clearly he
12 knew about that.

13 He's on public record as saying that he
14 prefers the footballs to be inflated at the lower
15 end. And he's made other statements to that effect.
16 So there is no question that he was aware of that.

17 And I don't think you can reasonably accept
18 the argument that you just heard that, because there
19 is not a specific rule or document that would tell a
20 player that if you are involved in an effort to
21 cause footballs to be deflated below the rules that
22 somehow you are not subject to discipline. On that
23 point, there is no question that Mr. Brady was fully
24 on notice of your authority to address conduct
25 detrimental and the integrity of the game. It's in

1 cooperate, as you know, during the investigation,
2 Mr. Brady was asked to provide what the report
3 describes as, "critical evidence." There is no
4 dispute. I don't think Jeffrey just disputed that
5 he did not do that. I think the argument I heard is
6 that he didn't do it because his lawyer told him not
7 to do it. I don't think that would be a basis to
8 excuse a failure to cooperate.

9 I don't think you will hear any argument
10 that -- reasonable argument that Mr. Brady didn't
11 know failing to cooperate in an investigation like
12 this could subject him to discipline. And I think
13 it's a critical point when you consider all of the
14 evidence in the report itself, because let's be
15 clear what evidence we are talking about.

16 As the report documents, and I didn't hear
17 whether Mr. Brady is going to testify about this,
18 but as you know, following the AFC Championship
19 Game, really for the first time, Mr. Brady all of
20 the sudden had all these contacts by phone, by text
21 and in person with Mr. Jastremski, the person he
22 relied on to ensure that the balls that he used in
23 the game were to his liking.

24 He was interviewed about this. It's all
25 documented in the report. There are numerous calls.

1 And the explanations that he provided and the
 2 witnesses provided, I would submit, you should
 3 consider as they are documented in the report.
 4 And I don't think you are going to hear any
 5 evidence today to come to any conclusion other than
 6 it would be simply implausible, implausible to
 7 accept the idea that Mr. Brady didn't have any
 8 knowledge about either Mr. Jastremski's activities
 9 or Mr. McNally's activities.
 10 It would not be plausible and I think, again,
 11 putting aside arguments about more probable than
 12 not, the bullet question I think in this proceeding
 13 is for you to make in terms of your judgment as to
 14 whether you believe after listening to Mr. Brady he
 15 engaged in conduct detrimental. He would submit
 16 that the evidence in the report on this point is
 17 substantial.
 18 I would also submit that the refusal to
 19 provide the information that Mr. Wells asked for
 20 that bore directly on this point not only is
 21 absolutely a failure to cooperate, but it is
 22 reasonable to draw the inference that the failure to
 23 do so, his failure to provide that information
 24 suggests that there were -- there was probative
 25 evidence in the texts.

1 Now, as far as this last-minute, the
 2 Declaration from Mr. Maryman, I think we addressed
 3 this in the letter and I don't spend a lot of time
 4 on it, I'm actually quite puzzled by the
 5 declaration. I don't see how it can help
 6 Mr. Brady's arguments here.
 7 First of all, there's a discussion about the
 8 e-mails. What the report documents is that the
 9 information that was most critical to Mr. Wells and
 10 the investigators are the texts. I think the
 11 players, like Mr. Brady, communicated by text far
 12 more than they do by e-mail.
 13 We were not provided with the context of any
 14 texts during the relevant period. In fact, and we
 15 will hear from Mr. Brady, I suppose today about
 16 this, in fact, if you look at this expert
 17 declaration that was just submitted, there is a
 18 large gap in terms of Mr. Brady's phone. There are
 19 no text records for the relevant period.
 20 I think the assumption could be they were
 21 somehow either destroyed. But even if that's not
 22 known, there is certainly no explanation as to why
 23 if Mr. Brady had cooperated when he was asked, if he
 24 had cooperated in a timely manner, that would have
 25 been available.

1 And interestingly, according to the
 2 declaration, and we can give you more in our brief
 3 about this, it appears that the phone was -- the new
 4 phone became available on March 6th, the date of his
 5 interview with Mr. Wells.
 6 All of this, all of this, Commissioner, while
 7 not a direct statement from Mr. Kessler, and not a
 8 direct text telling somebody please deflate a
 9 football below a certain amount, all of this is
 10 highly probative and as the report says, substantial
 11 evidence, substantial evidence of his knowledge of a
 12 very serious matter, of a very serious matter.
 13 You, as the Commissioner of the NFL, who is
 14 responsible for protecting the integrity of the
 15 game, can consider not just what you just heard from
 16 Mr. Kessler, not just a denial from Mr. Brady, but
 17 you can weigh that in the context of all of this
 18 evidence. And I would submit at the end of the
 19 proceeding, it's going to be your judgment.
 20 It's your judgment, Commissioner. You know
 21 that as to what the appropriate finding should be.
 22 What I can say with quite certainty, it is, you are
 23 plainly authorized under the CBA to make that
 24 judgment. To the extent that you decide to affirm
 25 the discipline, the evidence in the Wells report is

1 substantial and provides a more-than-adequate basis
 2 to affirm the discipline.
 3 And, finally, it is certainly fair and
 4 consistent. The fact that -- the argument that
 5 because no player before has engaged in something
 6 like this in this context, we are talking about the
 7 AFC Championship Game.
 8 Again, we are not talking about a ball boy
 9 heating up the ball who doesn't know the rules in
 10 Minnesota. When you read the Wells report, we are
 11 talking about much, much more. And in this context,
 12 in order for him to convince you that the discipline
 13 is not either fair or consistent, I would suggest
 14 that it's his burden. He would have to show you
 15 that there was some similar incident.
 16 And by "similar," it has to be the same
 17 overall facts. And on that point, one other thing
 18 about the Wells report that I think needs to be
 19 emphasized, you can parse various parts as
 20 Mr. Kessler did; he didn't address a lot of the
 21 evidence in the report, but you can parse things.
 22 But the Wells report makes clear that the
 23 conclusions are based on substantial evidence and
 24 they are based on the totality of the evidence.
 25 It's not just based on the scientific report. It's

1 not just based on one text or one phone call. It's
 2 based on all of the evidence.
 3 Commissioner, I would submit that's the
 4 judgment, that's the way you should approach the
 5 judgment, is you listen to the evidence. I would
 6 submit that when you listen to the evidence today
 7 and when you weigh that against all of the evidence
 8 that we are going to put into the record including
 9 the Wells report, it is certainly within your
 10 discretion to conclude that Tom Brady engaged in
 11 conduct detrimental, serious conduct detrimental,
 12 and that the discipline imposed was fair and
 13 appropriate.

14 MR. KESSLER: I would like to use five
 15 minutes of my very valuable time just to respond to
 16 a few points that Mr. Nash raised. The first one
 17 is, he emphasized at the end, he kept using the word
 18 "the player engaged," "the player engaged in conduct
 19 detrimental." No player has engaged in similar
 20 conduct.

21 I'm sorry, but Mr. Nash is wrong. Mr. Wells
 22 did not make any finding and there is no finding
 23 that Mr. Brady engaged in anything other than being
 24 generally aware of somebody else's conduct. He has
 25 no response to that. He can point to nothing. He

1 can brief this afterwards. And I'm saying right now
 2 he will find no precedent for generally aware. So
 3 the whole premises of his argument of "engaged" is
 4 just not what the Wells report found.

5 Number 2, on the e-mails, he seems to not
 6 understand the Maryman Declaration. So let me just
 7 explain it a little bit. I didn't think I had to.
 8 It says, so, for the phone texts, the phone doesn't
 9 exist. It didn't exist at the time. In other
 10 words, Mr. Brady's practice, you will hear, because
 11 of living the life he lives as a celebrity, for
 12 better or worse, he gets free telephones.

13 And based on that, he gets rid of his phones
 14 constantly because he's afraid of in this world of
 15 social media what would happen if somebody got his
 16 private information with himself and his wife and
 17 other things and what that would become. So that
 18 has been his practice for years and years.

19 So what did we provide? We provided all the
 20 phone logs that show the text messages. I didn't
 21 even know this, but your phone bills, you can
 22 actually get the records, show all the text
 23 messages. And what does that show? It shows all
 24 the text messages from the relevant time match up to
 25 all the texts to Mr. Jastremski, okay. There are

1 none to Mr. McNally, which is consistent with
 2 Mr. Brady's testimony that he didn't really know
 3 Mr. McNally in any material way at all.

4 So there are no texts to Mr. McNally's
 5 number. The Jastremski texts match up and the
 6 Schoenfeld texts match up. So everything that was a
 7 text there was basically in the Wells report. So
 8 for Mr. Nash to come and say you should assume that
 9 there are bad texts and Mr. Brady's going to testify
 10 there were no such texts and the phone records show
 11 there were no such texts, there is no way you can
 12 draw that adverse inference about him. And it's not
 13 right for Mr. Nash to suggest it.

14 With respect to the issue of cooperation, as
 15 Mr. Nash knows, and as I believe you know, the
 16 only -- assuming there was a lack of cooperation for
 17 the moment, and we believe why we think you should
 18 not find that in this case because there was no
 19 policy that said it, he wasn't told about it,
 20 assuming you say I think this was a lack of
 21 cooperation, here, we do have a history of very
 22 comparable behavior in Mr. Nash's word.

23 So Brett Favre in an incident you may
 24 remember involving sexting on his phone, he was
 25 found to have refused to cooperate in the

1 investigation and he was fined \$50,000.

2 When that came up in bounty, you will
 3 remember Mr. Hargrove was fined -- was suspended;
 4 I'm sorry -- for refusing to cooperate in the
 5 investigation. Commissioner Tagliabue said the
 6 following with respect to that: He reversed
 7 Mr. Hargrove's suspension and he said, "Although not
 8 entirely comparable to the present matter," talking
 9 about the Favre situation for Mr. Hargrove, "This
 10 illustrates NFL's practice of fining, not
 11 suspending, players for serious cooperation
 12 violations of this type."

13 That's the history. It's been a fine. So if
 14 Mr. Nash had said I still think it's cooperation, it
 15 should be a fine, that would be one thing. But
 16 there is no history in the light of bounty, I don't
 17 see any way under fair and consistent a suspension
 18 would be imposed just on this cooperation issue.
 19 And finally, on the issue Mr. Nash said,
 20 well, it's not a big deal that it's not in any
 21 policy or notice. Mr. Brady should just know that
 22 this, he would be punished for this. Well, that's
 23 not what the cases say.

24 So in Peterson, Judge Doty said the new
 25 policy couldn't be imposed instead of the old policy

1 because the player had no notice of it even though
2 the player surely knew from the old policy that
3 domestic violence was prohibited, but it had to do
4 with what the punishment can be and that's what
5 Judge Doty held. And right now that's binding law
6 on the NFL League.

7 It says, Commissioner Tagliabue in bounty,
8 specifically said that in the case of bounty, the
9 League's history was to hold the clubs responsible,
10 not the players, and therefore, he found that as a
11 reason to overturn the discipline there. And he
12 said because that was the history.

13 That's the exact history here. That's why
14 the conduct detrimental doesn't apply. This is the
15 competitive integrity policy which is directed at
16 holding the clubs responsible for this. Now, that
17 can change. It can promulgate a new policy, but it
18 matters. It's simply not correct legally that it
19 doesn't matter.

20 And I know Mr. Levy will give you legal
21 advice on this based on the caselaw. But I just
22 believe when you get that advice and look at the
23 evidence, you are going to conclude that notice,
24 fairness and consistency matters. So thank you very
25 much for that extra time.

DIRECT/BRADY/KESSLER Page 47

1 MR. LEVY: Why don't you call your first
2 witness.

3 MR. KESSLER: I will. I will now call Tom
4 Brady to the stand, please.
5 **THOMAS BRADY**, called as a witness, having
6 been first duly sworn by a Notary Public of the
7 State of New York, was examined and testified as
8 follows:

9 DIRECT EXAMINATION BY

10 MR. KESSLER:

11 **Q.** Good morning, Mr. Brady. Could you please
12 just state your name for the record so we have that.

13 **A. Thomas Edward Patrick Brady, Jr.**

14 **Q.** Thank you. And what college did you attend?

15 **A. University of Michigan.**

16 **Q.** And what year were you drafted into the NFL?

17 **A. 2000.**

18 **Q.** And by which team?

19 **A. New England Patriots.**

20 **Q.** Okay. And how many seasons have you played
21 in the NFL?

22 **A. 15.**

23 **Q.** And have they all been with the Patriots?

24 **A. Yes.**

25 **Q.** And how many Super Bowls have you led the

1 Patriots to during your career?

2 **A. Four.**

3 **Q.** Now, how many did you go to?

4 **A. Six.**

5 **Q.** I know you are focused on how many did you
6 win?

7 **A. Four.**

8 **Q.** Okay. Has anybody won anymore?

9 **A. Same, Montana.**

10 MR. KESSLER: That's all I am going to do on
11 Mr. Brady's background, which I think is well-known
12 to the Commissioner regarding this.

13 COMMISSIONER GOODELL: Sure.

14 **Q.** Mr. Brady, I'm going to direct all of your
15 testimony now to the issue of game balls and the
16 incidents that are in the Wells report and all of
17 that information.

18 So let me first ask you, sir, and if you
19 would just explain to the Commissioner more than me,
20 who selects the footballs you use in the NFL games?

21 **A. I do.**

22 **Q.** Okay. And could you explain to the
23 Commissioner how do you decide what balls you would
24 like to use, what factors, what process do you go
25 through? If you could explain that to him.

DIRECT/BRADY/KESSLER Page 49

1 **A. Well, we have a, I would say in a very**
2 **general situation, I have played a lot of games and**
3 **we have different practices, I think, depending**
4 **on -- depending on the game. I think every**
5 **quarterback likes the balls a certain way. And it**
6 **really has to do with feel. It really has to do**
7 **with comfort of gripping the ball. And I think we**
8 **go through pretty, you know, extensive, rigorous**
9 **process to take what may be a brand new football and**
10 **try to break it in as quickly as possible so it can**
11 **be available to be one of the game balls that you**
12 **use on game day.**

13 **So what typically happens is over the course**
14 **of the week, in our situation, John would break the**
15 **balls in.**

16 COMMISSIONER GOODELL: John who?

17 THE WITNESS: Jastremski.

18 **A. He would break in the last three or four**
19 **years, I don't know however long it's been, he has**
20 **been the one that I've dealt with that has been**
21 **responsible for prepping them so that I can go in**
22 **before the game and choose what I like and what we**
23 **are going to play with on that particular day.**

24 **And it's a very feel-oriented process. It's**
25 **not, you know, I grab the ball. I feel with my**

1 **hands. If I approve it, you know, I flip it to**
 2 **John, you know, to sort through however many he may**
 3 **make up for the game. There could be 30 balls.**
 4 **There could be 40 balls. I could select 12. I may**
 5 **select 24 depending if we think we are going to use**
 6 **additional balls. So I think it's really a process**
 7 **for me to -- I don't even really think about. Is it**
 8 **important to me? Absolutely. I think the ball is**
 9 **important to every quarterback, which is why we are**
 10 **a part of that 2006 that we could break them in.**

11 **But for me, it's always been about how does**
 12 **the ball feel in my hand? Can I properly grip it**
 13 **and, you know, is this, what I feel is going to be**
 14 **the best to go out there and perform on the field**
 15 **with? So that's basically it.**

16 **Q.** Mr. Brady, did the issue of inflation level
 17 ever come up as a factor when you are choosing your
 18 balls or deciding upon the balls; is that something
 19 you think about at that time?

20 **A. Never.**

21 **Q.** Okay. Do you discuss the inflation level of
 22 the balls with Mr. Jastremski during the process
 23 when you are selecting the balls?

24 **A. Never.**

25 **Q.** Okay. Now, once you approve the footballs

1 **the field that I play with. So once I pick the ball**
 2 **out, then I don't want anything other than that ball**
 3 **to be the one that I am on the field playing with.**

4 **Q.** Now I am going to ask you now, I am going to
 5 turn to the October 2014 Jets game.

6 **MR. KESSLER:** And to give you, Commissioner,
 7 context, this is the game about which this various
 8 e-mail traffic and discussing the Jets' ball that's
 9 in the Wells report. That's the one we are focusing
 10 on right now.

11 **Q.** Now, what do you recall was your reaction to
 12 the footballs when you felt them in the October 16,
 13 2014, game against the Jets? Was there anything
 14 different? What happened?

15 **A. Before the game or after the game?**

16 **Q.** Well, first, yeah, let's go before the game.
 17 Was there anything different?

18 **A. Well, we chose a different process. So I**
 19 **would say we have a pretty standard process for how**
 20 **we break the ball in or how John breaks the balls**
 21 **in. It's a very rigorous process. It's probably,**
 22 **you spend a significant amount of time on each ball.**

23 **COMMISSIONER GOODELL:** What does he do, Tom?
 24 Do you mind?

25 **MR. KESSLER:** Sure.

1 for the game, when is the next time you come into
 2 contact with the balls?

3 **A. On the field.**

4 **Q.** During your whole career now, I want to be
 5 very clear about this, I am asking during your whole
 6 career, have you ever asked anyone from the Patriots
 7 to alter the footballs in any way after you've
 8 approved them?

9 **A. No.**

10 **Q.** Okay. Now, have you ever specifically, so
 11 again, very specific question, have you ever told
 12 anyone on the Patriots after you've given to them
 13 that they should change the inflation level of the
 14 footballs after you approved them or do anything
 15 about the inflation level after you approved them?

16 **A. No.**

17 **Q.** Now, what would be your reaction if
 18 Mr. Jastremski or anyone else in the Patriots was
 19 doing something to the footballs after you've
 20 approved it? How would you feel about that?

21 **A. I would disapprove of that.**

22 **Q.** Why? Why would it matter to you?

23 **A. Because I go through, like I said, this**
 24 **extensive process to pick out the balls for the**
 25 **game, and that's the ball ultimately that I want on**

1 **THE WITNESS:** Well, I don't know all the
 2 specifics. I know there's sandpaper. I know
 3 there's dirt. I know there's a leather conditioner
 4 that we use that I got from my old college coach
 5 that we use on the ball quite a bit.

6 **And we take leather receiving gloves that the**
 7 **receivers use and we try to get the tack from the**
 8 **leather on the receiver gloves and really rub that**
 9 **into the -- (indicating) -- each of these balls have**
 10 **nubs on them. Sometimes if the ball is too nubby, I**
 11 **like to sand down the nubs. I don't like it when**
 12 **there's no nub because then there's no traction on**
 13 **the ball.**

14 **So you want your hand to be able to grip the**
 15 **ball, but you don't want it so flat that you can't.**
 16 **So they try to, basically, moisten the ball with the**
 17 **leather conditioner. And it's -- it's -- that has**
 18 **been a very helpful way to break in a new ball**
 19 **quickly, not that there is any way to break in**
 20 **quickly.**

21 **I think even before John, John Jastremski**
 22 **took over that process, which like I said, it's a**
 23 **very extensive process, so I'm not sure how the**
 24 **other equipment managers do it, but a lot of players**
 25 **would just basically use the ball in practice until**

1 it broke in enough that they could -- that they
2 would want to use it in the game.

3 Sometimes that may take two weeks, three
4 weeks, four weeks, it takes a long time to break in
5 a football if you are just playing catch with it.

6 At some times in my career, I have seen ball boys
7 manually throwing the ball back and forth to one
8 another, I mean, literally hundreds of times to try
9 to break the ball in. So to use that conditioner,
10 it's been a significant way to kind of speed up the
11 process.

12 COMMISSIONER GOODELL: You said there were
13 different processes?

14 THE WITNESS: Yeah.

15 COMMISSIONER GOODELL: And you said you did
16 something different at the Jets game?

17 THE WITNESS: Yeah.

18 COMMISSIONER GOODELL: What was the
19 difference, I guess just so I understand, and how
20 many different processes did you have? I understand
21 there are multiple steps that you just described.

22 THE WITNESS: There was really, we basically
23 prepared them one way up until that particular game.

24 We played in a game late, not in 2014, but in 2013.

25 It may have been the last game of the year. We

1 played the Buffalo Bills and there was a torrential
2 downpour and we used a lot of the Lexol leather
3 conditioner on the ball. And John, not knowing
4 that, what he does always before the game with the
5 Lexol, and it turns out that when the Lexol is
6 exposed to the -- to the wet weather, the ball gets
7 very oily and it makes it nearly impossible to grip.

8 So when we went into that particular Jet
9 game, there was going to be inclement weather and
10 I -- we came to I think a mutual decision. And he
11 said, believe me, we are going to use a lot of these
12 old footballs that are from training camp which, I
13 don't know, four or five weeks, six weeks ago that
14 we would never typically use in a game because they
15 don't have any Lexol on them.

16 But they are already broken in so that when
17 the water hits the ball, the water will absorb into
18 the ball and it will create, you know, enough
19 tackiness with just the water that you will be able
20 to grip it when you throw it.

21 So I was a little hesitant, but I went with
22 it. You know, I felt the balls before the game. I
23 said all right, you know, let's go for it. And then
24 I got on the field and hated it.

25 Q. Tell the Commissioner --

1 COMMISSIONER GOODELL: In the Jets game?

2 THE WITNESS: In the Jets game.

3 Q. Tell the Commissioner what did you feel
4 different in the football during the Jets game?

5 A. Well, the ball was very hard, so it didn't
6 feel like the ball was the way I approved them
7 before the game. And for one reason or another, I
8 don't know what happened to the balls.

9 COMMISSIONER GOODELL: But they were the same
10 balls, to your knowledge?

11 THE WITNESS: I have no idea. To my
12 knowledge, yes, they should have been.

13 Q. And did you react to that with anybody on the
14 team?

15 A. Yes. Can I just say one other thing?

16 Q. Sure.

17 A. So when you use -- just to be clear, when I
18 say "soft" and "hard," a lot of times the only thing
19 I have ever felt a football when I say that is the
20 softness of the leather. So when I say I'm trying
21 to break in the ball, I'm breaking in the -- I'm
22 making the laces softer, I'm making the leather
23 softer, like you refer to it like a baseball mitt.

24 So when we use those balls in the Jet game,
25 they were balls that were really old balls so the

1 leather was soft. Does that make sense? The
2 leather was soft. The ball wasn't soft. The
3 leather felt like I could grip it.

4 Q. Now I would like you to turn to, so you felt
5 the ball, but you didn't like it. Who did you
6 express your feelings to during the game?

7 A. To John. It was over the course of the first
8 half that, you know, I was just, I was very pissed
9 off. I was very pissed off at -- partly because I
10 felt like I got talked into using these balls that
11 we had done, like I said, a different protocol, and
12 I felt like it didn't work out very well.

13 Q. Mr. Brady, during the course of a game, is it
14 fair to say you are somebody who gets fired up and
15 intense during a game?

16 A. Yes.

17 Q. Is that a fair statement?

18 A. Yeah.

19 Q. Okay. Did some of that intensity get
20 directed at Mr. Jastremski during this game?

21 A. I mean, yes, I think it did. It did. I was
22 pissed off. So it's kind of a good attitude for me
23 to have all the time on the football field, you
24 know. And I know that he got the brunt of it
25 because I didn't like -- for the first time in my

1 **career, I didn't like the way the football felt.**

2 **Q.** Now, the next day after the Jets game, did
3 Mr. Jastremski then tell you anything he learned
4 about the balls?

5 **A. I don't know if it was the next day or days**
6 **after that game.**

7 **Q.** Sometime after the Jets game, what did
8 Mr. Jastremski tell you he learned about the ball?

9 **A. That the balls were, you know, inflated to,**
10 **you know, much higher than what they were agreed**
11 **upon before the game.**

12 **Q.** Do you recall what number he used?

13 **A. 16.**

14 **Q.** 16 psi? Okay.

15 And how did you react to that? First of all,
16 before he mentioned that, at that time, did you have
17 any prior knowledge as to what the exact psi levels
18 were set for in this NFL rule from 1920?

19 **A. Zero.**

20 **Q.** No knowledge at all until then?

21 **A. Zero.**

22 **Q.** Okay. So after he told you it was something
23 called 16, what did you say to him? How did you
24 react to that?

25 **A. Well, obviously, I felt like somebody did**

1 **something to the balls. I thought possibly the**
2 **referees added balls -- added air to the balls, just**
3 **because maybe they squeezed them, felt that these**
4 **balls feel soft and just, you know, squeezed air**
5 **into the ball.**

6 **So I told our -- I asked our equipment**
7 **manager, Dave Schoenfeld. I said Dave, what does it**
8 **say in the rule book as to how the balls should be**
9 **inflated? And he brought me a piece of paper that**
10 **was highlighted and it said the balls should be**
11 **between 12 and a half and 13 and a half. And then I**
12 **told Dave --**

13 COMMISSIONER GOODELL: That was in the days
14 following the Jets game?

15 THE WITNESS: Yes, I don't know, two days,
16 three days, four days.

17 COMMISSIONER GOODELL: Whatever it was?

18 THE WITNESS: Yes.

19 I said make sure when the referees get the
20 balls, give them this sheet of paper that
21 highlighted, because really I don't want that to
22 ever happen again. I don't want to go out there on
23 the field and play with a ball that's --

24 **Q.** The sheet of paper was, the rules say between
25 12 and a half and 13 and a half?

1 **A. Yes.**

2 **Q.** And so you were telling him make sure the
3 officials don't make it more than that? Don't make
4 it 16, right?

5 **A. Yes.**

6 **Q.** Other than that comment, have you ever, after
7 that time, told Mr. Jastremski or anybody else in
8 the Patriots anything else about the pressure of
9 footballs? Was there any comments at all that you
10 make to them --

11 **A. No.**

12 **Q.** -- until this happened?

13 **A. No.**

14 COMMISSIONER GOODELL: Tom, why would you go
15 to Dave -- is it Schoenfeld -- the equipment
16 manager?

17 THE WITNESS: Yeah.

18 COMMISSIONER GOODELL: Why did you go to him
19 and not Jastremski?

20 THE WITNESS: Because he's his boss.

21 COMMISSIONER GOODELL: Jastremski was the one
22 who went through the process with you in the past?

23 THE WITNESS: Right.

24 COMMISSIONER GOODELL: And prepared them for
25 you, and you didn't ask him about the pressure?

1 THE WITNESS: I may have had Dave -- no, I
2 didn't. I didn't ask John about it. I don't think
3 I did. I mean, it could have been the two of them
4 there together at the same time. I'm sure John
5 eventually found out.

6 **Q.** Tom, at the time of this, did you even know
7 who on the Patriots would be with the officials when
8 the balls were being looked at to show them the rule
9 to tell them that? In other words, did you even
10 know it was Jastremski or somebody else?

11 **A. No, I never thought about it.**

12 COMMISSIONER GOODELL: Just so I'm clear,
13 this is a Jets game in New York?

14 THE WITNESS: No.

15 COMMISSIONER GOODELL: It's not? It was in
16 New England?

17 THE WITNESS: Yeah.

18 **Q.** Now, let me show you next something from the
19 Wells report, because Mr. Nash in his opening
20 mentioned that there were these e-mails from other
21 people or texts from other people that are not you.
22 But it's talking about you, so I want to give you
23 some chance to give context to what this seems to
24 refer to, even though you obviously don't know what
25 the e-mails say or mean other than that you are

1 looking at them now.
 2 Take a look at in the Wells report, which is
 3 NFLPA Exhibit 7. I'm sure it has an NFL number as
 4 well. And take a look at page 86 of the Wells
 5 report.
 6 COMMISSIONER GOODELL: Is this it?
 7 MR. LEVY: Yes.
 8 MR. KESSLER: Do you have it, Commissioner?
 9 COMMISSIONER GOODELL: Yes.
 10 **Q.** So the Jets game we are talking about was
 11 October 16th. You will see these are a pair of
 12 e-mails from Mr. Jastremski to Panda that are
 13 October 17th. You will see that's the day after the
 14 Jets game, just to give context to everyone.
 15 By the way, I will represent to you because
 16 it says in Mr. Wells' report that Panda is
 17 Mr. Jastremski's fiancé, so that we know who he's
 18 communicating with is his fiancé, the day after the
 19 Jets game, okay?
 20 And you will see what he writes is,
 21 "Ugh...Tom was right."
 22 Do you see that? And then it goes, "I just
 23 measured some of the balls. They are supposed to be
 24 13. They were, like, 16, felt like bricks."
 25 Do you see that?

1 **A. Yeah.**
 2 **Q.** Now, at this time, when he says, "Tom was
 3 right," what had you discussed with Mr. Jastremski
 4 during the game? Did you say anything about the
 5 pressure at that time or the psi during the game?
 6 **A. No.**
 7 **Q.** What did you tell him?
 8 **A. I don't -- that the balls sucked, yeah.**
 9 **Q.** I think you said they felt hard or fat or
 10 something like that?
 11 **A. I didn't like them.**
 12 **Q.** Does this reference to you in any way
 13 indicate that you had a conversation with him during
 14 the Jets game about pressure or psi or anything like
 15 that?
 16 **A. No.**
 17 **Q.** Thank you.
 18 Now, when you told Mr. Schoenfeld to show the
 19 referees the rule, did you ever tell him you wanted
 20 him or anyone else to make a psi level below 12.5
 21 that you now learned was the limits?
 22 **A. No.**
 23 **Q.** Okay. Did you ever tell anyone in the Jets
 24 organization -- I'm sorry, the Patriots organization
 25 -- that they should do -- they should try to get the

1 balls to be less than 12.5?
 2 **A. No.**
 3 **Q.** Now, let me now mention, because it came up
 4 in the Wells report, the 2006 rule change that you
 5 were involved in. Were you one of the quarterbacks
 6 to lobby for the rule change in 2006 regarding
 7 preparation of footballs?
 8 **A. Yes.**
 9 **Q.** Who were some of the other quarterbacks who
 10 were involved in that?
 11 **A. I know Peyton was, Trent Green, Drew Brees;**
 12 **who else?**
 13 **Q.** Were most of the quarterbacks in the League
 14 involved at that time?
 15 **A. All of them. And everyone ultimately that we**
 16 **sent a petition to, you know, said, hell yeah, let's**
 17 **do it. Let's agree with it.**
 18 **Q.** And let me just refer, we have NFLPA
 19 Exhibit 203 is a copy of the petition. Is this the
 20 petition that you and other quarterbacks signed
 21 asking for the ability to prepare your footballs as
 22 a rule change?
 23 **A. Yes.**
 24 **Q.** Okay. Now, in this petition, was there any
 25 discussion of the pressure of the balls or inflating

1 balls or anything about that subject at all?
 2 **A. No.**
 3 **Q.** During the time in 2006, did you have
 4 discussions with anybody about inflating footballs
 5 or the psi's of footballs or even what those
 6 requirements were?
 7 **A. No.**
 8 **Q.** Did you ever learn the 12.5 to 13.5 standard
 9 during that 2006 process?
 10 **A. No.**
 11 **Q.** Okay. Now, was this rule ultimately
 12 presented to the NFL Competition Committee?
 13 **A. Yes.**
 14 **Q.** And did the Competition Committee adopt this
 15 rule change to let the quarterbacks prepare their
 16 balls?
 17 **A. Yes.**
 18 COMMISSIONER GOODELL: Mr. Kessler, who did
 19 this come from?
 20 MR. KESSLER: The petition?
 21 COMMISSIONER GOODELL: Yes.
 22 MR. KESSLER: The quarterbacks and the League
 23 all signed it.
 24 COMMISSIONER GOODELL: I know. I signed it.
 25 But who did it come from?

1 THE WITNESS: Peyton.
 2 COMMISSIONER GOODELL: Peyton?
 3 THE WITNESS: Manning.
 4 MR. KESSLER: And then this was presented to
 5 the Competition Committee and that's what happened.
 6 **Q.** Now, in the Wells report, Mr. Wells said, and
 7 this is one of the points that Mr. Nash said or
 8 Mr. Wells reached his conclusions, and he wrote, "It
 9 is reasonable to infer" -- that's the words he
 10 used -- "that you were likely to have become
 11 familiar with the NFL rules regarding the 12.5
 12 minimum inflation level in 2006 when you were
 13 lobbying for this rule."
 14 Regardless of what Mr. Wells said was
 15 reasonable to infer, did you, in fact, become aware
 16 of the rule at that time?
 17 **A. No.**
 18 **Q.** Was there any discussion of that rule at that
 19 time?
 20 **A. No.**
 21 **Q.** Now, let me now turn to the AFC Championship
 22 Game against the Colts.
 23 MR. KESSLER: Commissioner, do you think we
 24 should have a break? Should I continue? Okay, we
 25 will continue.

1 COMMISSIONER GOODELL: Do you want a break?
 2 THE WITNESS: No.
 3 **Q.** Looking at that game, do you recall
 4 approximately what time the game was going to start
 5 that night, roughly?
 6 **A. 7:30, 8:00.**
 7 **Q.** Would it refresh your recollection if I said
 8 it was around 7:00, 6:50, 7:00?
 9 **A. It was a night game.**
 10 **Q.** That sounds about right? Okay.
 11 How many hours before, approximately, would
 12 you have made your final approval of the balls on
 13 that day for the AFC Championship Game?
 14 **A. I think between three and four hours.**
 15 **Q.** Okay. Now, when you selected the footballs,
 16 who was assisting you in the selection process at
 17 that time?
 18 **A. John.**
 19 **Q.** Anybody else besides Mr. Jastremski or was it
 20 just the two of you?
 21 **A. Just the two of us.**
 22 **Q.** Okay. Now, at the time that you made that
 23 selection, did you give Mr. Jastremski -- did you
 24 say anything to him about the pressure level of the
 25 balls on that day?

1 **A. No.**
 2 **Q.** Did you in any way suggest to him to do
 3 something to the balls to make them less than 12.5?
 4 **A. No.**
 5 **Q.** Did you even suggest to him anything about
 6 the pressure whether it was to make it at any level?
 7 **A. No.**
 8 **Q.** What were you talking to Mr. Jastremski about
 9 when you were selecting the balls, if you remember;
 10 what kinds of factors were you talking about?
 11 **A. Just the way the ball felt. And this was a**
 12 **different -- can I talk about just, again, was a**
 13 **different process than what we had normally gone**
 14 **through.**
 15 COMMISSIONER GOODELL: The AFC Championship
 16 Game?
 17 THE WITNESS: The AFC Championship Game.
 18 **A. So knowing that I didn't want to go back and**
 19 **use two-month balls in this AFC Championship Game**
 20 **like we did for the original Jets game, I think on**
 21 **Friday we found out the weather was going to be**
 22 **inclement.**
 23 **And we decided to break in brand-new**
 24 **footballs with, like, 36 hours to go before the game**
 25 **because I didn't want any Lexol on the balls. And I**

1 **didn't want to do the same thing that happened in**
 2 **the Jets game.**
 3 **So we kind of referred back to an old process**
 4 **that the previous equipment manager who was**
 5 **responsible for the preparation of the game balls**
 6 **did, which was like I said, that really extensive**
 7 **manual throwing, gloving process that makes up for a**
 8 **lot of the Lexol.**
 9 **What you gain from the Lexol, kind of the**
 10 **weeks of breaking the ball in, that kind of, you can**
 11 **get through those. So I asked John to make up 24**
 12 **brand new balls without putting any Lexol on them.**
 13 COMMISSIONER GOODELL: Have you ever done
 14 that procedure before?
 15 THE WITNESS: No. It had been many years.
 16 COMMISSIONER GOODELL: When you played in
 17 inclement weather, did you ever decide to do that?
 18 THE WITNESS: No.
 19 COMMISSIONER GOODELL: This is the first time
 20 in the AFC Championship Game you said, I want to
 21 break in 24 new footballs in a different process
 22 than you have ever done before?
 23 THE WITNESS: Well, that's the way -- before
 24 John took over, the guy John Hillebrand, that's how
 25 he broke the balls in. We didn't use much Lexol with

1 John Hillebrand. That's not what he wanted to do.
 2 When John Jastremski took over, we used a lot more
 3 Lexol.
 4 COMMISSIONER GOODELL: Was the Jets game in
 5 inclement weather?
 6 THE WITNESS: I don't think it ended up --
 7 no. It was supposed to be, but it didn't end up
 8 being. It may have -- it may have rained; I don't
 9 remember.
 10 Q. Which game are we talking about?
 11 A. **The Jets game.**
 12 Q. The original?
 13 COMMISSIONER GOODELL: Back in October.
 14 A. **So what happened was I don't want any -- we**
 15 **definitely need to use new balls, but I don't want**
 16 **any Lexol on the balls. So you basically have to go**
 17 **through this rigorous ball preparation with, like,**
 18 **36 hours to go.**
 19 COMMISSIONER GOODELL: But over the three
 20 years that John was there --
 21 THE WITNESS: Yeah.
 22 COMMISSIONER GOODELL: -- you never did that
 23 before? You never did a 24, 48-hour process to take
 24 new balls and break them in?
 25 THE WITNESS: No.

1 COMMISSIONER GOODELL: But you decided to do
 2 it because you felt --
 3 THE WITNESS: Right. But we also had a lot
 4 of backups to that, too. I said, look, in case I
 5 don't like this when you are done, make sure we
 6 have, like, that night, I think I had, like,
 7 probably 50 balls to choose from.
 8 COMMISSIONER GOODELL: Okay.
 9 Q. Now, Mr. Brady --
 10 THE WITNESS: And, sorry, when I felt them
 11 that night, I liked them so we went with them.
 12 COMMISSIONER GOODELL: "That night" was what?
 13 THE WITNESS: The night of the game.
 14 COMMISSIONER GOODELL: Okay.
 15 Q. Mr. Jastremski never was with you prior to
 16 this year when you went to the Super Bowl, right?
 17 A. **No.**
 18 Q. Okay. Mr. Hillebrand had been with you and
 19 he was preparing the balls when you got to the
 20 Super Bowl sometimes; is that correct?
 21 A. **Yes.**
 22 Q. During the game, now, when did you next get
 23 the balls after you gave them to John on game day?
 24 You picked your balls and you gave it to John. Do
 25 you know where he took them or what happened after

1 then?
 2 A. **No. Normally I just leave because I do it in**
 3 **the equipment room.**
 4 Q. So that was, you gave the balls to him. When
 5 did you next see any of the balls?
 6 A. **On the field.**
 7 Q. On the field?
 8 COMMISSIONER GOODELL: Just so I am clear,
 9 for warmup or game?
 10 THE WITNESS: Game.
 11 Q. Now during the game you got the balls. Did
 12 they feel okay to you?
 13 A. **Yes.**
 14 Q. In other words, you didn't notice anything
 15 unusual about the balls or your balls felt okay?
 16 A. **I didn't think about it. They felt fine; I**
 17 **didn't.**
 18 Q. You had a process like you had in the Jets
 19 game?
 20 A. **That was the only time I reacted to not**
 21 **having a ball.**
 22 Q. They felt like they normally feel after you
 23 select them?
 24 A. **Yes.**
 25 Q. After halftime, did the balls feel any

1 different to you than they did in the first half of
 2 the game?
 3 A. **No.**
 4 Q. Now, did you know during the game that the
 5 referees had put more air into the balls to get them
 6 to 13 psi at the halftime? Were you aware of that
 7 during the game?
 8 A. **No.**
 9 Q. So could you even tell the difference between
 10 whatever the inflation was in the first half versus
 11 the second half in terms of your feel? Did you have
 12 any sense of that during the game?
 13 A. **No.**
 14 Q. Now, just to ask, do you recall how you
 15 played in the second half of that game?
 16 A. **We played good. We played really well.**
 17 Q. Is it correct that at least your statistics
 18 of passing a touchdown were better in the second
 19 half after the ball was raised to 13 by the
 20 referees? You didn't know it, than they were in the
 21 first half?
 22 A. **Yeah.**
 23 Q. Was that correct?
 24 A. **What did I do? I don't --**
 25 Q. Okay. You don't focus on your own

1 statistics; what do you focus on in the game?

2 **A. Whether we win or lose.**

3 **Q.** Yes, okay.

4 **A. We did good in the second half. We played**
5 **really well.**

6 **Q.** That's sufficient.

7 Now what I want to do is focus on the events
8 after the game is over. When did you first become
9 aware after the game now that someone was making
10 allegations that the Patriots had done something to
11 deflate the balls during the game? How did you
12 learn about that?

13 **A. On the radio show the following morning.**

14 **Q.** The following morning?

15 **A. Yeah.**

16 **Q.** Okay. And what was your reaction when you
17 heard about that?

18 **A. I couldn't believe it. I think I said it's**
19 **ridiculous.**

20 COMMISSIONER GOODELL: Just so I am clear,
21 you were being interviewed or you just heard it on
22 the radio?

23 THE WITNESS: I was being interviewed by the
24 host on the show.

25 **Q.** Now, after this radio interview, you heard

1 **Q.** Okay. Now, there are records that Mr. Wells
2 has noted that in the weeks after the game, now, so
3 you now have two weeks to Super Bowl, you had
4 various text messages and phone conversations with
5 Mr. Jastremski?

6 **A. Yes.**

7 **Q.** Now, first of all, what was most of those
8 phone conversations about? Why were you talking to
9 Mr. Jastremski in those two weeks?

10 **A. Because we were obviously going to the Super**
11 **Bowl, still had the season to play and I knew there**
12 **was another extensive process of breaking in all the**
13 **brand new Super Bowl footballs.**

14 **So we had numerous conversations on the**
15 **processes that we would go through to break them in**
16 **because the ones we had gone through the AFC**
17 **Championship where we didn't use the Lexol, we were**
18 **going to play in a dome.**

19 **The last time we played in Arizona, it rained**
20 **after the game. So I didn't necessarily want to**
21 **chance it with putting a bunch of Lexol. So we were**
22 **just determined when he was going to get the balls**
23 **whether we were going to use them at practice or**
24 **not. I think most of the conversations centered**
25 **around breaking in those balls.**

1 this allegation; did you speak to anyone in the
2 Patriots about this allegation?

3 **A. I spoke to John.**

4 **Q.** Okay. And did you ask Mr. Jastremski if he
5 knew anything about the efforts to deflate the
6 footballs or anything like that?

7 **A. Yes.**

8 **Q.** What did he tell you?

9 **A. That he has no idea what happened and that he**
10 **couldn't explain it.**

11 **Q.** And you know Mr. Jastremski a long time, I
12 mean, for these three years?

13 **A. Well, I have known him for 12 years since he**
14 **has been working on the team because he was actually**
15 **kind of the quarterback ball boy at one point during**
16 **training camp, so.**

17 **Q.** You generally found that in your dealings
18 with him, he has been honest and upfront with you
19 over the years?

20 **A. Absolutely.**

21 **Q.** Do you believe that?

22 **A. Absolutely.**

23 **Q.** So when he told you he didn't know anything
24 about it, did you believe him?

25 **A. Absolutely.**

1 **Q.** The Commissioner may already know this. I
2 didn't know this. Do you have to prepare more
3 footballs for a Super Bowl than for other games in
4 the NFL season?

5 **A. Yeah.**

6 **Q.** Why is that? Could you explain to the
7 Commissioner. Maybe you know all this. What's
8 different about the Super Bowl?

9 **A. Well, you know, we break in, I think**
10 **almost -- I think you use the ball for one play and**
11 **then they take it out of the game. So I think**
12 **there's almost 100 balls that we broke in.**

13 **Q.** How many balls do you have to select for a
14 Super Bowl as opposed to a normal game?

15 **A. I think around 100 as opposed to 12.**

16 **Q.** That's, like, almost ten times as many balls?

17 **A. Yeah.**

18 **Q.** So in your experience in past Super Bowls, is
19 that an expensive process for someone like
20 Mr. Jastremski to go through in that two-week period
21 of time?

22 **A. Absolutely.**

23 **Q.** And he had ever done that before for a Super
24 Bowl?

25 **A. No.**

1 Q. And you were aware of that?

2 A. Yes.

3 Q. Now, take a look again. I want to refer you
4 to some of the e-mails or texts, the things that
5 Mr. Wells cites. So look at page 104 of the Wells
6 report, which is NFLPA Exhibit 7.

7 Now, you will notice this is a text from you
8 to Mr. Jastremski at 9:51 in the morning of the
9 19th, which is the, I believe the day after the AFC
10 Championship Game, so after the radio interview and
11 remember you said you had a phone conversation with
12 him?

13 A. Yes.

14 Q. So was this text after that phone
15 conversation you had with him?

16 A. Yes.

17 Q. Okay. Now, what did you mean or why were you
18 sending a text to Mr. Jastremski saying, "You are
19 good, Jonny boy?"

20 And then he writes back to you, "Still
21 nervous. So far, so good, though. I will be all
22 right."

23 What do you understand that to be referring
24 to, if you could explain that to the Commissioner?

25 A. I wrote, "You good, Jonny boy," like, you

1 doing okay? Because he was obviously nervous the
2 fact that these allegations were coming out that
3 they would fall back on him. And I was just, I
4 guess, expressing my concern for him.

5 Q. Now, you then wrote to him, "You didn't do
6 anything wrong, bud."

7 Why did you say that? Was that based on your
8 conversation with him?

9 A. Yeah, I said, "You didn't do anything wrong,
10 bud." That's how I, you know.

11 Q. And then he writes back, "I know. I will be
12 all good."

13 A. Yeah.

14 Q. Did that set of texts refer in any way to
15 your knowing that he had done anything to deflate
16 footballs or anything like that at all?

17 A. No.

18 Q. Now let me refer you next, the Wells report
19 notes that, "There came a time that you invited
20 Mr. Jastremski in this two-week period to the Super
21 Bowl to come to the quarterback room."

22 I think it was on that day. Do you recall
23 inviting him to the quarterback room?

24 A. Yes.

25 Q. Well, first of all, just to explain to the

1 Commissioner, describe the quarterback room. Is it
2 kind of some secret sanctuary like the Bat Cave that
3 only the most special people get invited in? What
4 kind of people are in the quarterback room every
5 day?

6 A. All the quarterbacks, coaches.

7 Q. Can any one of your backup quarterbacks
8 invite whoever they want into the quarterback room?

9 A. Absolutely.

10 Q. Okay.

11 COMMISSIONER GOODELL: Had John ever been in
12 it?

13 THE WITNESS: Up to that point, I have no
14 idea.

15 COMMISSIONER GOODELL: But not with you or
16 you don't remember?

17 THE WITNESS: I don't remember.

18 Q. Now, normally, when you are preparing for a
19 game, do you prepare in the quarterback room or do
20 you prepare at your home, usually?

21 A. Home.

22 Q. Okay. On this particular day, were you
23 preparing in the quarterback room at that time?

24 A. Yes.

25 Q. Okay. And so, why did you call

1 Mr. Jastremski to the quarterback room? Was there
2 some significance to that?

3 A. Because I was doing all my Seahawks
4 preparation and I was just thinking about the Super
5 Bowls and asked him to come to the quarterback room
6 as opposed to me going to try to find him somewhere.

7 Q. Okay. Now, during that time in the
8 quarterback room, what was the purpose of asking
9 him? What did you want to talk about?

10 A. The Super Bowl.

11 Q. Okay. So did you call him there because you
12 wanted to discuss something about the allegations
13 that were being made at that time?

14 A. No.

15 Q. Is it possible that something came up about
16 is he feeling okay because you heard that?

17 A. Sure, absolutely.

18 Q. But anything beyond that, do you remember any
19 conversations about the allegations?

20 A. I don't remember.

21 Q. Okay. Now, by the way, there has been some
22 discussion from the Wells report about Mr. McNally
23 and whether you knew him or not, okay. Prior to all
24 these allegations, did you know the name Jim
25 McNally?

1 A. No.

2 Q. Now, did you know who it was, even, who met
3 with referees in their locker room when they are
4 testing the balls? Did you even know which person
5 physically on the Patriots was the person who went
6 in there and did that?

7 A. No.

8 Q. Okay. Now, in the New England stadium on
9 game day, are there lots of people who come in just
10 for game day as kind of part-time people working in
11 various ways?

12 A. Yes.

13 Q. Okay. And do you get to sort of know over
14 the years their faces, whether or not you know their
15 names?

16 A. Yes.

17 Q. So is it possible that you actually knew -- I
18 will even ask it differently.

19 Have you subsequently learned who Mr. McNally
20 is among those people?

21 A. Yes.

22 Q. And is he somebody you actually sort of knew
23 as a face, somebody to go, like, wave to but you
24 didn't know who he was, his name?

25 A. Yes.

1 Q. Okay. Now, other than that, do you have any
2 relationship with Mr. McNally at all?

3 A. No.

4 Q. Now, there is discussion in the Wells report
5 about Mr. McNally getting some autographed jerseys
6 or footwear or other things that you would
7 autograph; are you familiar with that?

8 A. Yes.

9 Q. Describe for the Commissioner what your
10 practice is when you get asked to sign jerseys or
11 shoes or other things by people who are, you know,
12 at the stadium or around the locker room or any of
13 those environments; what is your normal practice?

14 A. I get asked I would say on a daily basis to
15 sign any number of things. I think I told Mr. Wells
16 I don't think I have ever turned anyone down. So if
17 someone asked, I signed whatever they would ask.
18 Sometimes they would put it in my locker and
19 walk away and there would be things there and I
20 would just sign them. But if somebody asked for an
21 autograph, I would give it to them.

22 Q. Have you signed autographs for merchandise of
23 people who you don't know what they are? Someone
24 comes over and says, "Could you give me this for
25 somebody else?" Would you sign that even if you

1 don't know the person?

2 A. Absolutely.

3 Q. Have you ever handed signed merchandise to
4 people in the locker room at the stadium when you
5 didn't really know what their name was?

6 A. Yes.

7 Q. You just said here, they asked, someone did
8 it and you gave it to them?

9 A. Yes.

10 Q. So there's a statement here in the Wells
11 report, and I don't know who the source is because
12 you can't tell from the report, that someone says
13 that you handed a signed Jersey or shoes or
14 something to Mr. McNally at one point, okay.

15 If you did that, did you know somebody named
16 Mr. McNally when you did it?

17 A. No.

18 Q. Now, let me turn now very briefly to the
19 subject of electronic communications. Now, did
20 there come a time after February 28th, so now we are
21 well past the Super Bowl when you learned from your
22 lawyers or your agents that there had been some
23 request made for e-mails and texts that you might
24 have?

25 A. Yes.

1 Q. Okay. Now, we know that those were --
2 nothing was turned over or the request was not
3 responded to. How did you make the decision about
4 that? What were you relying upon? How did you
5 decide that?

6 A. Well, I was relying on their advice as my
7 lawyers and what they basically said, There's been a
8 request, but we don't think it's proper for you to
9 turn your phone over, so you don't need to do that.

10 Q. If they had told you that you should turn
11 over anything, would you have done so?

12 A. Absolutely.

13 Q. Okay. At the time that the request was made,
14 okay, you know what e-mails you did and what texts
15 you did. Were there any e-mails or texts that you
16 were worried about which showed you knew about
17 deflating or anything like that? Was there anything
18 you were trying to hide or conceal in your mind?

19 A. Absolutely not.

20 Q. Okay. Were there any such texts where you
21 wrote to somebody talking about deflating footballs
22 or other things in connection with the AFC
23 Championship Game?

24 A. No.

25 Q. Were there any e-mails like that?

1 **A. No.**

2 **Q.** Now, you were interviewed by Mr. Wells and
3 his team, correct?

4 **A. Yes.**

5 **Q.** And did they spend a number of hours with
6 you?

7 **A. Yes.**

8 **Q.** During that time, did they ever tell you that
9 if you didn't turn over some texts or e-mails or
10 respond to that that you were going to be
11 disciplined in any way, you know, that you were
12 going to be violating some, you know, specific
13 policy about that or anything like that? Did they
14 ever tell you that?

15 **A. No.**

16 **Q.** If you had been informed by them and they
17 said look, this is your duty to cooperate, would you
18 then have produced them no matter what your agents
19 and your counsel said?

20 **A. Yes.**

21 **Q.** Okay. Have you ever had anything to hide on
22 this issue, Mr. Brady?

23 **A. No.**

24 **Q.** Now, Mr. Brady, let me ask you about your
25 patterns of phones, okay, because not everybody has

1 phone or anything like that?

2 **A. No.**

3 **Q.** Did you do anything unusual except your
4 normal practice, when you are done with a cell
5 phone, to get rid of it and have it destroyed?

6 **A. That's what I do.**

7 COMMISSIONER GOODELL: Just, Jeff, can I ask
8 a question? How often do you normally dispose of
9 your phone? When you say "get rid of," does it run
10 out of time?

11 THE WITNESS: Well, if it -- a new version
12 may come out of a particular phone, if I break the
13 phone, I've stepped on the screen a few times, it
14 just fell out of my bag at my locker, I'm not seeing
15 it, I stepped on it, I think three or four times,
16 sometimes the touch panel breaks.

17 COMMISSIONER GOODELL: But it's not a very
18 regular practice, irrespective of you breaking it,
19 to just get rid of it or when a new version comes
20 out? I'm trying to understand that, or is it every
21 month you change it just for security reasons?

22 THE WITNESS: No, I don't do that.

23 COMMISSIONER GOODELL: Does your number
24 change when that happens?

25 THE WITNESS: No. The number would stay the

1 this pattern, okay. First of all, do you have
2 access to basically cell phones for free?

3 **A. Yes.**

4 **Q.** So it is essentially costless to you to get
5 another cell phone?

6 **A. Yes.**

7 **Q.** Okay. Now, have you had a practice, and tell
8 me when it began, how long ago, of destroying or, I
9 guess, asking somebody to destroy or get rid of your
10 cell phones periodically?

11 **A. I think for as long as I have had a cell
12 phone.**

13 **Q.** Okay. Since you have been in the NFL?

14 **A. I don't remember all the way back, but yeah,
15 I've had a cell phone since being in the NFL.**

16 **Q.** So whenever you first started having, I don't
17 know when cell phones started, but whenever you
18 started having cell phones in the NFL, that has been
19 your practice, correct?

20 **A. Yes.**

21 **Q.** Okay. And did you do anything unusual here
22 in terms of getting rid of your phone? And I will
23 explain what I mean. In other words, did you hear
24 about the Wells investigation or the request for
25 this and then say, oh, let's get rid of my cell

1 same.

2 COMMISSIONER GOODELL: Okay.

3 **Q.** And, in fact --

4 THE WITNESS: The only time I changed it was
5 after the report came out and there was -- a lot of
6 people started guessing what my phone number was and
7 then I changed my number.

8 MR. KESSLER: And, Commissioner, the phone
9 log we produced, just for your information, covers
10 that whole period for which we don't have the cell
11 because the number was the same number. And we got
12 all the phone records from the company and that has
13 been submitted.

14 COMMISSIONER GOODELL: Do you have multiple
15 phones?

16 THE WITNESS: No.

17 **Q.** Mr. Brady, when Mr. Wells interviewed you,
18 did you answer every question that he or his
19 colleagues asked you?

20 **A. Yes.**

21 **Q.** Did you refuse to answer any question that he
22 or his colleagues asked you?

23 **A. No.**

24 **Q.** By the way, did he ever ask you if there were
25 any texts or phone messages that you had that would

1 have discussed deflating footballs or anything like
2 that?

3 **A. Did he ask me?**

4 **Q.** Yes, did he ask you that?

5 **A. Yes.**

6 **Q.** And what did you tell him?

7 **A. No.**

8 **Q.** That there were none?

9 **A. Right.**

10 **Q.** Let me now turn to a few more of the --

11 **A. Can I just say something as I think about the**
12 **process --**

13 **Q.** Yes, please.

14 **A. -- of getting rid of the phone?**

15 **Q.** Anything you would like to tell about the
16 Commissioner.

17 **A. I think whenever I'm done with the phone, I**
18 **don't want anybody ever to see the content of the**
19 **phone, photos. Obviously there is a log with the**
20 **smart phones of all my e-mail communications. So in**
21 **those folders, there is player contracts. There's,**
22 **you know, endorsement deals. There's -- along with**
23 **photos of my family and so forth that I just don't**
24 **want anyone to ever come in contact with those.**
25 **A lot of people's private information that,**

1 It goes from 77 to 79 in terms of that. So at the
2 bottom, these are not e-mails that you sent or texts
3 you sent.

4 This is between Mr. Jastremski and someone
5 called Bird. I will represent to you Mr. Wells has
6 reported that Mr. McNally's nickname is Bird. So
7 this is a set of text messages between Mr. McNally
8 and Mr. Jastremski. And you will see the date is
9 10/17, okay, which is the morning after that Jets
10 game that we previously discussed with you.

11 So this is what was written. Bird writes to
12 Jastremski, "Tom's sucks. I am going to make that
13 next ball a fucking balloon."

14 Do you see that?

15 And then Jastremski writes, "Talked to him
16 last night. He actually brought you up and said you
17 must have a lot of stress trying to get them done."

18 John Jastremski to Bird, "I told him it was.
19 He was right, though."

20 Then John says, "I checked some of the balls
21 this morning. The refs fucked us. A few of them
22 were at almost 16."

23 Do you see that?

24 **A. Yes.**

25 **Q.** Now, just in context, this was after you had

1 **had that phone -- if it shows up somewhere, then,**
2 **you know, all the contacts in my phone, you know,**
3 **wouldn't want that to happen. So I have always told**
4 **the guy who swaps them out for me, make sure you get**
5 **rid of the phone.**

6 **And what I mean is destroy the phone so that**
7 **no one can ever, you know, reset it or do something**
8 **where I feel like the information is available to**
9 **anybody.**

10 **Q.** Mr. Brady, we've already gone through a few
11 of the texts and the e-mails that are in the Wells
12 report that either you sent or that mentioned you.
13 What I'm going to do now is, there are a very few of
14 these that actually mention you or are alleged to
15 mention you.

16 I am going to ask you about each of them.
17 And I know these are not your e-mails, but Mr. Nash
18 has said that we should look at these e-mails.

19 MR. KESSLER: And so what I want to tell the
20 Commissioner, I'm covering every one that Mr. Wells
21 claims relates to Mr. Brady in some way, either
22 mentioning him or with him.

23 **Q.** So we've done a few already. I'm going to go
24 through a few more now. Take a look at the Wells
25 report. And this is on page 77 on the Wells report.

1 gotten somewhat agitated with Mr. Jastremski about
2 how the ball felt during the game, right?

3 **A. Yes.**

4 **Q.** Now, when it says here that, "Talked to him
5 last night. He actually brought you up," did you
6 ever bring up Mr. McNally at that time?

7 **A. No.**

8 **Q.** Did you even know that, by name or not, did
9 you even know who it was who went to the referees'
10 room when balls were blown up or not? Did you know
11 anything about that, or tested?

12 **A. No.**

13 **Q.** Do you remember saying anything to
14 Mr. Jastremski about somebody having a lot of stress
15 about getting something done?

16 **A. No.**

17 **Q.** Now, in the Jets game, if you look at the
18 last one, you see the reference to 16. That's the
19 one they thought was -- that they tested and they
20 found was at 16, right; is that correct?

21 **A. What do you want to know?**

22 **Q.** Do you remember that you were told it was 16?

23 **A. Yes, in the Jets game.**

24 **Q.** Right. So my question is, in the Jets game,
25 did anybody make any efforts to deflate or reduce

1 footballs or were the footballs turned out to be 16?
 2 What happened at the Jets game?
 3 **A. The balls were overinflated.**
 4 **Q.** Okay. And are you aware of any efforts at
 5 the Jets game by anyone to try to deflate or take
 6 air out of balls at the Jets game?

7 **A. No.**

8 **Q.** Now, I would like you to look at, on page 86
 9 of the Wells report, we already covered this one;
 10 I'm sorry. This is the one that says, "Tom was
 11 right and it's supposed to be 13." We already
 12 covered that one, sorry.

13 Let's now go to page 105 of the Wells report.
 14 This is now the last one of all the ones that
 15 allegedly refer to you. And it says here, this is
 16 John to you, this is 1/19/2015. So this is after
 17 the AFC Championship Game, okay.

18 And John wrote to you, "For your
 19 information" -- "FYI, Dave will be picking your
 20 brain later about it. He's not accusing me or
 21 anyone. Trying to get to the bottom of it. He
 22 knows it's unrealistic you did it yourself."

23 John then says, "Just a heads-up."

24 And you write, "No worries, bud. We are all
 25 good."

1 What's your understanding of what they say
 2 referring to here in these texts with you and
 3 Mr. Jastremski?

4 **A. That John was telling me that Dave would be**
 5 **picking my brain about it and that he wasn't**
 6 **accusing him and he was trying to get to the bottom**
 7 **of it and he knows it's unrealistic that I did it.**

8 **So that was just the heads-up. And I wrote**
 9 **back, "No worries bud, we are all good," because I**
 10 **obviously didn't think we had anything to do with**
 11 **it.**

12 **Q.** Now, when he wrote, "It's unrealistic you did
 13 it yourself," did you have any knowledge that
 14 Mr. Jastremski or Mr. McNally or anybody had done
 15 anything to the balls?

16 **A. No.**

17 **Q.** Did you understand him to be saying here
 18 that, well, I did it, but you could have done it?
 19 Did you view it as a confession by Mr. Jastremski?
 20 Is that your understanding of the text?

21 **A. No.**

22 **Q.** What did you understand he was saying here
 23 when he said, "It's unrealistic you did it
 24 yourself"?

25 **A. That he knows, he knows, "It's unrealistic**

1 **that you did it yourself, but he's still going to**
 2 **ask you about it."**

3 **Q.** Did it in any way indicate that
 4 Mr. Jastremski did it or Mr. McNally or anyone else
 5 in your mind at the time if you remember when you
 6 read it? Did you think that?

7 **A. No.**

8 **Q.** Okay. As you are sitting here today, I am
 9 going to ask you to be very clear. Did you ever
 10 give anyone any directions or instructions or
 11 authorization, anything, for the AFC Championship
 12 Game that they should alter, change, lower the
 13 pressure of footballs?

14 **A. Absolutely not.**

15 **Q.** Okay. You never authorized it?

16 **A. No.**

17 **Q.** Okay. Do you know somebody did it despite
 18 your authorization?

19 **A. I don't know what you mean.**

20 **Q.** In other words, are you aware that, even know
 21 you didn't authorize it, they did it anyway?

22 **A. No.**

23 **Q.** Are you aware of that?

24 **A. No.**

25 **Q.** Do you know that?

1 **A. Absolutely not. I wasn't there.**

2 **Q.** Okay. As you are sitting here right now, do
 3 you still believe Mr. Jastremski that when he told
 4 you he didn't know anything about it and he didn't
 5 do anything?

6 **A. Yes.**

7 **Q.** Has anyone in the Patriots organization,
 8 anyone else ever told you that they did anything to
 9 deflate the footballs on that day after they were
 10 tested by the referees?

11 **A. Absolutely not.**

12 **Q.** One last question, Mr. Brady. There's a
 13 policy at issue in this case that I will show you.

14 MR. KESSLER: What exhibit is that, John?

15 MR. AMOONA: I believe it's 115.

16 MR. KESSLER: 115. While we are doing that,
 17 I'm just going to note for the Commissioner that
 18 Exhibit 95 is the Competition Committee report in
 19 2006, which discusses the change and the reason for
 20 it.

21 And you will find it has nothing to do with
 22 ball inflation or psi or anything like that. It's a
 23 full Competition Committee report that's in the
 24 record.

25 I assume, Dan, we agree all exhibits are in

1 evidence?

2 MR. NASH: Yes. Let me -- we will check. We
3 will get back to you on that, but I think that's
4 right.

5 MR. KESSLER: That is our normal practice.
6 But I'm assuming all exhibits offered by both
7 parties would be in evidence.

8 **Q.** 115, if you could look at Exhibit 115. This
9 is a very thick exhibit. I think we will be able to
10 deal with this quickly. But look first at the cover
11 of it so you can see what the cover of it is.

12 Do you recall ever being given a copy of this
13 policy? I think the title is "Policy Manual For
14 Member Clubs."

15 **A. No.**

16 **Q.** Okay. Now, if you turn to the section on
17 "Competitive Integrity." I think that is, it's
18 like, if you look in the index, you will see that
19 is -- I don't have a copy in front of me.

20 MR. KESSLER: What is it, John, for the
21 record?

22 MR. AMOONA: A2.

23 **Q.** Do you recall ever getting a copy of this
24 Competitive Integrity Policy?

25 **A. No.**

1 **Q.** You will see at the top it's directed -- who
2 does it say it's directed to? Do you see at the
3 very top? Who is listed?
4 Here, I got it now. If you look at it, you
5 will see at the very top, it says, "The following
6 updated memorandum was sent on February 11, 2014, to
7 chief executives, club presidents, general managers
8 and head coaches from Commissioner Goodell regarding
9 the Policy on Integrity in Game and Enforcement and
10 Competitive Rules."

11 Do you see that?

12 **A. Yes.**

13 **Q.** To your knowledge, was it ever sent to you as
14 a player?

15 **A. Not that I can remember.**

16 MR. KESSLER: I have no further questions.
17 But if the Commissioner has any additional questions
18 or Mr. Levy, even before the NFL or at any time, we
19 are certainly willing to answer anything the
20 Commissioner would like to know.

21 COMMISSIONER GOODELL: Should we take a
22 break? Are you okay? You want to take a break?

23 THE WITNESS: Sure.

24 COMMISSIONER GOODELL: Why don't we take a
25 quick break, ten minutes.

1 (Recess taken 11:23 a.m. to 11:38 a.m.)

2 MR. LEVY: Any questions for the witness from
3 this side of the room?

4 MR. REISNER: I think we will be asking some
5 questions.

6 CROSS-EXAMINATION BY

7 MR. REISNER:

8 **Q.** Good morning, Mr. Brady.

9 **A. Good morning.**

10 **Q.** Mr. Brady, did you hear Mr. Kessler say in
11 his opening statement with respect to text messages
12 that you have produced exactly what Ted Wells asked
13 for? Did you hear that?

14 **A. Yes.**

15 **Q.** And you know that one of the things that the
16 Paul, Weiss investigative team asked for was copies
17 of all text messages that you sent or received that
18 referred to ball deflation and ball inflation and
19 other topics identified as relevant, right?

20 **A. Not sure what you are asking.**

21 **Q.** You knew that one of the things that the
22 Paul, Weiss investigative team asked for was any
23 text messages that referred to ball inflation and
24 ball deflation, right?

25 **A. I'm not sure I was aware of exactly what was**

1 **asked for other than what --**

2 **Q.** Did you know that one of the requests was for
3 all text messages that related to ball inflation and
4 ball deflation?

5 **A. I don't remember.**

6 **Q.** And do you know whether any search was done
7 of text messages referring to ball inflation or ball
8 deflation?

9 **A. Yes.**

10 **Q.** Tell us what search was conducted for those
11 text messages as far as you know.

12 **A. Well, there was a forensics -- forensics team**
13 **that Steve had, I guess, hired to examine some**
14 **phones that I had.**

15 **Q.** So there was a forensic team that was hired
16 to examine the text messages on phones that were
17 provided to that forensic team, correct?

18 **A. Yes.**

19 **Q.** And those were phones that you used, correct?

20 **A. Yes.**

21 **Q.** I want to direct your attention to what's in
22 evidence as NFLPA Exhibit 6, which is the
23 Supplemental Declaration of Brad Maryman. Do you
24 have that document in front of you?

25 **A. Yes.**

1 **Q.** And is Brad Maryman the forensic expert that
2 was engaged to review the telephones?

3 **A. Yes.**

4 **Q.** And you see there is a reference in
5 paragraph 1 to, "Two mobile phone devices used by
6 Mr. Thomas Brady, Jr.," correct?

7 **A. Yes.**

8 **Q.** And that refers to the mobile phone devices
9 that you provided for his review, correct?

10 **A. Yes.**

11 **Q.** And directing your attention to paragraph 4
12 of the document, it refers to the first phone and
13 says that, "It's dates of active use were from
14 March 6, 2015 through April 8, 2015."

15 Do you see that?

16 **A. Yes.**

17 **Q.** And directing your attention to the next
18 paragraph which refers to the second phone review,
19 it says that, "The dates of active use were from
20 March 23, 2014 or May 23, 2014 through November 5,
21 2014," correct?

22 **A. Yes.**

23 **Q.** And those were the only two phones that were
24 provided to the forensic expert, correct?

25 **A. Yes.**

1 **Q.** And do you see that there is a gap from
2 November 6, 2014 to March 5, 2015, in the phones
3 provided to and received by and reviewed by the
4 forensic consultant?

5 **A. Yes.**

6 **Q.** And did you use a cell phone to make calls
7 and send and receive text messages during this gap
8 period of November 6, 2014, to March 5, 2015?

9 **A. Yes.**

10 **Q.** And that gap period of November 6, 2014 to
11 March 5, 2015, includes the day of the AFC
12 Championship Game on January 18, 2015, correct?

13 **A. Yes.**

14 **Q.** And that gap period also includes the period
15 immediately following the AFC Championship Game
16 after questions were raised about possible deflation
17 of footballs, correct?

18 **A. Yes.**

19 **Q.** And that gap period also includes a number of
20 months leading up to the AFC Championship Game,
21 correct?

22 **A. Yes.**

23 **Q.** It includes almost all of November, right?

24 **A. Yes.**

25 **Q.** All of December and January, all of February,

1 all the way up to March 5, 2015, correct?

2 **A. Yes.**

3 **Q.** Do you know how many text messages you sent
4 and received during that gap period?

5 **A. I don't.**

6 MR. REISNER: I'm going to ask that NFLPA
7 Exhibit 1 be placed before Mr. Brady.

8 **Q.** These are phone records that have been
9 produced by your counsel in connection with this
10 proceeding. And I want to direct your attention
11 specifically to the portion of this exhibit with the
12 Bates Stamp Numbers NFLPA Brady 00067 through NFL
13 Brady 00206.

14 And you will see that this document includes
15 99 pages of text phone records between November 6,
16 2014 and March 5, 2015 that list approximately 9,900
17 text messages that were sent or received during that
18 period.

19 So my question is: Do you know why a phone
20 that was active during this period was not provided
21 to your forensic expert for review?

22 **A. We didn't have it.**

23 **Q.** Do you know where that phone is now?

24 **A. No idea.**

25 **Q.** Are you certain that you disposed of that

1 phone?

2 **A. I gave it to my assistant.**

3 **Q.** Do you know when you provided it to your
4 assistant?

5 **A. I have no idea.**

6 **Q.** And when you provided it to your assistant,
7 did you provide it to your assistant for the purpose
8 of it being disposed of?

9 **A. Yes.**

10 **Q.** Exhibit 96 submitted by the NFL refers --
11 it's a letter from your agent, Donald Yee, to
12 Commissioner Goodell, dated June 18th.

13 MR. REISNER: Why don't we have that placed
14 before Mr. Brady.

15 THE WITNESS: Thank you.

16 **Q.** And if you look at the first page of this
17 letter down toward the bottom, the letter states,
18 referring to you, "His custom and practice is also
19 to destroy SIM cards when he gets a new phone and to
20 destroy the actual device when he is done with the
21 phone."

22 Do you see that?

23 **A. Yes.**

24 **Q.** And does that accurately reflect your
25 practice?

1 **A. Yes.**

2 **Q.** And you say you don't recall precisely when
3 you gave this phone to your assistant for
4 destruction, correct?

5 **A. Yes.**

6 **Q.** But if you were following your practice, you
7 would have done it around the time that you got a
8 new phone, correct?

9 **A. I'm not sure.**

10 **Q.** Well, the letter that you just said
11 accurately describes your practice says you destroy
12 SIM cards when you get a new phone and "to destroy
13 the actual device when he is done with the phone,"
14 right?

15 **A. My assistant does that.**

16 **Q.** Right. So if your actual practice was being
17 followed, the phone would have been destroyed, the
18 phone you were using would have been destroyed
19 around the same time you started using another
20 phone, correct?

21 **A. Right.**

22 **Q.** And directing your attention back to the
23 Declaration of Mr. Maryman, NFLPA Exhibit 6.

24 **A. Yeah.**

25 **Q.** The date of active use of your new phone,

1 according to paragraph 4 of his declaration, was
2 March 6, 2015, correct?

3 **A. Yes.**

4 **Q.** Do you remember anything else that happened
5 on March 6, 2015?

6 **A. No.**

7 **Q.** Was March 6, 2015 the date that you were
8 interviewed by Mr. Wells and his team?

9 **A. Possibly; I don't know. Was it?**

10 **Q.** If I represent to you that March 6, 2015 was
11 the date you were interviewed by Mr. Wells and his
12 team, you have no reason to doubt that, correct?

13 **A. Right, correct.**

14 **Q.** And because your forensic expert didn't have
15 access to the phone that was being used during what
16 I'm calling this gap period, he couldn't review the
17 text messages, the content of the text messages that
18 were sent and received during this gap period,
19 correct?

20 **A. I think we tried to provide him with
21 everything that we possibly could, you know, to that
22 point. If the phone was already taken out of
23 service, then it was --**

24 **Q.** You couldn't provide him with a phone that
25 had been destroyed, correct?

1 **A. Or that I had given to my assistant, whether
2 he destroyed it or not.**

3 **Q.** That you gave to your assistant for the
4 purposes of destruction, correct?

5 **A. Possibly.**

6 **Q.** Was that your purpose? Was that your plan
7 when you provided the discarded phone to your
8 assistant, that your assistant would destroy the
9 phone?

10 **A. That was kind of the normal routine.**

11 **Q.** So that was your expectation when you
12 provided that phone to your assistant that the phone
13 would be, in fact, destroyed, correct?

14 **A. Yes.**

15 **Q.** And if you were following your ordinary
16 practice, that would have been around the beginning
17 of the date of active use of the new phone that you
18 were using, correct?

19 **A. Possibly.**

20 **Q.** If you were following the practice described
21 in Mr. Yee's letter, that's what would have
22 occurred, correct?

23 **A. Not sure.**

24 **Q.** Okay. At the interview on March 6th by
25 Mr. Wells and his team, were you asked questions

1 about text messages that you sent and received?

2 **A. Yes.**

3 **Q.** And at that time, were you aware that there
4 was an outstanding request from the Paul, Weiss
5 investigative team for text messages?

6 **A. The only thing that I knew about phone and
7 electronic communications was an e-mail that Don had
8 sent me at some point that said there was a request
9 to turn over your phone. There's really no reason
10 to do that and we are not going to provide them
11 that. And that's the last I thought of providing my
12 phone.**

13 **Q.** Were you aware on or about February 28, 2015
14 that a request had been made to you for text
15 messages?

16 **A. I think the only thing that I remember was
17 the e-mail from Don that said there's been a request
18 made, along those lines, but we are not going to
19 allow, you know, them to take your personal cell
20 phone.**

21 COMMISSIONER GOODELL: Was it around that
22 time?

23 THE WITNESS: I don't know; I'm not sure. I
24 don't remember when I got that message or --

25 **Q.** Do you recall at your interview on March 6th

1 by Mr. Wells and his team being told that the Paul,
 2 Weiss team was seeking text messages?
 3 **A. I don't remember that.**
 4 **Q.** Do you remember being told during that
 5 interview that Mr. Wells didn't care whether he got
 6 the actual phone or not and that he would rely on
 7 your counsel to review the text messages and that
 8 would satisfy his request for the text messages? Do
 9 you recall hearing that discussion during the
 10 March 6th interview?
 11 **A. I don't remember that.**
 12 **Q.** Mr. Kessler said that certain materials had
 13 been provided by your counsel in connection with
 14 this proceeding, correct?
 15 **A. Yes.**
 16 **Q.** Do you know whether the materials produced by
 17 your lawyers in connection with this hearing include
 18 the content of any text messages?
 19 **A. I'm not sure.**
 20 **Q.** So if I represented to you that the materials
 21 produced by your counsel in this proceeding don't
 22 include the content of any text messages, you have
 23 no reason to doubt that, correct?
 24 **A. Correct.**
 25 **Q.** And are you aware if the phone records

1 8:33 p.m.," referring to text messages between you
 2 and John Jastremski, correct?
 3 **A. Yes.**
 4 **Q.** And that period of February 7 is in that gap
 5 period that the forensic examiner didn't have a
 6 telephone for, right?
 7 **A. Right.**
 8 **Q.** So we don't know what the content of those
 9 text messages were, right?
 10 **MR. KESSLER:** Are you going to ask him? You
 11 can ask him. He's right here.
 12 **Q.** So you haven't been able to produce the
 13 content of those text messages, right?
 14 **A. No.**
 15 **MR. KESSLER:** Okay, I will have some
 16 questions on redirect. You don't want to know the
 17 content?
 18 **MR. LEVY:** Jeffrey.
 19 **MR. KESSLER:** Sorry.
 20 **Q.** And directing your attention to that gap
 21 period again from November 6, 2014, through
 22 March 5th of 2015, do you know whether anyone has
 23 reviewed those messages to determine whether there
 24 were any messages referring to the deflation of
 25 footballs or other topics that are responsive to the

1 produced by your counsel show that, on February 7,
 2 2015, you and John Jastremski exchanged three text
 3 messages?
 4 **A. I'm not sure; I don't remember.**
 5 **Q.** Let's look back at NFL Exhibit 96, the letter
 6 from Mr. Yee to Commissioner Goodell. And I'm
 7 directing your attention to page 3 of the letter in
 8 the middle of the page.
 9 After Number 2, Jastremski, toward the end of
 10 that paragraph, it says, "The phone bills also show
 11 three text message exchanges on February 7, 2015
 12 between 8:21 p.m. and 8:33 p.m. These occurred
 13 after the Super Bowl and were not mentioned or
 14 referenced in the Wells report."
 15 Do you see that?
 16 **A. What page are you on?**
 17 **Q.** Page 3 of the letter.
 18 **A. Yeah.**
 19 **Q.** Number 2 is Jastremski?
 20 **MR. KESSLER:** Two in the bottom half, Tom.
 21 **Q.** Two in the bottom half.
 22 **A. Yes.**
 23 **Q.** It says toward the end of that paragraph,
 24 "The phone bills also show three text message
 25 exchanges on February 7, 2015 between 8:21 p.m. and

1 Paul, Weiss requests?
 2 **A. If someone reviewed those?**
 3 **Q.** Do you know whether anyone has been able to
 4 review those messages to determine whether there are
 5 any messages referring to the deflation of footballs
 6 or other topics responsive to the Paul, Weiss
 7 requests?
 8 **A. No.**
 9 **Q.** Now, I want to ask you some questions about
 10 your knowledge of the NFL rule with respect to the
 11 inflation level of footballs.
 12 **A. Yes.**
 13 **Q.** You are presently aware that the NFL rules
 14 require that footballs be inflated to between 12.5
 15 and 13.5 pounds, correct?
 16 **A. Yes.**
 17 **Q.** And when did you become aware of that?
 18 **A. After the Jets game.**
 19 **Q.** So during the period from when you entered
 20 the League in 2000 through the beginning of the 2014
 21 season, you were unaware that the NFL rule was that
 22 balls should be inflated to between 12.5 and
 23 13.5 pounds per square inch?
 24 **A. I think so.**
 25 **Q.** And in 2006, you were involved in efforts to

1 change the rules regarding ball usage, correct?

2 **A. Yes.**

3 **Q.** Around the time that you were involved in

4 efforts to change the rules around the ball usage,

5 did you read the NFL rules regarding the ball?

6 **A. No, at least I don't remember reading it.**

7 **Q.** Now, you have said publically that you like

8 footballs to be inflated at a level of 12.5 psi,

9 correct?

10 **A. I said that after the championship game.**

11 **Q.** And so, how long have you known that 12.5 is

12 your preferred level of inflation?

13 **A. After the Jets game.**

14 **Q.** And how did you come to learn that 12.5 is

15 your preferred level of inflation?

16 **A. We basically just picked a number at that**

17 **point, I guess, historically, we had always set the**

18 **pressure at -- before John Jastremski took over, it**

19 **had been historically set at, like, 12.7 or 12.8.**

20 **That's what I learned after the fact. And I**

21 **think based on that Jets game, I said why don't we**

22 **just set them at 12.5, bring this letter to the ref**

23 **and I didn't think about it after that.**

24 **Q.** You say you "just picked the number." Did

25 you pick that number 12.5 for any particular reason?

1 **A. Ball pressure has been so inconsequential, I**

2 **haven't even thought about that. I think at the end**

3 **of the day, the only time I thought about it was**

4 **after the Jet game and then after this was brought**

5 **up, after the championship game. It's never**

6 **something that has been on my radar, registered. I**

7 **never said "psi." I don't think I even know what**

8 **that meant until after the championship game. It**

9 **was never something that even crossed my mind.**

10 **Q.** How did you come to pick 12.5 as the number?

11 **A. We looked in the rule book.**

12 **Q.** How did you come to pick 12.5 as the number

13 for your preferred pressure level for the footballs?

14 **A. I don't know how we exactly did it. I don't**

15 **remember how we came to that other than the**

16 **experience that I had in the Jet game when they were**

17 **grossly overinflated and then they showed me the**

18 **rule book or the copy of the page in the rule book.**

19 **And I said, why don't we just set them here, 12.5,**

20 **and not think about it ever again.**

21 **Q.** Did you pick 12.5 because it was toward the

22 lower end or the lower end of the permissible range?

23 **A. I'm not sure why I picked it in particular,**

24 **other than having to put some -- I think John said**

25 **he did either 12.5 or 12.6. You know, we had to**

1 **pick some number that we were ultimately going to**

2 **set them to, so I said why don't we just set them**

3 **all to 12.5 and that was it.**

4 **Q.** Is it fair to say that you prefer the

5 footballs inflated to a pressure level at the low

6 end of the range?

7 **A. Like I said, I never have thought about the**

8 **ball, the air pressure in a football. The only time**

9 **I have ever thought about the air pressure in a**

10 **football was after the Jets game when they were at**

11 **the level of 16.**

12 **So whenever I went to pick the game balls, I**

13 **never once in 15 years ever asked what the ball**

14 **pressure was set at until after the Jet game. So**

15 **whether it's 12.5 or 12.6 or 12.7 or 12.8 or 12.9 or**

16 **13, all the way up to the Colts game, I still think**

17 **it's inconsequential to what the actual feel of a**

18 **grip of a football would be.**

19 **So the fact that there could be a ball that's**

20 **set at 12.5 that I would disapprove of, there could**

21 **be a ball that's 13 that I could approve of. It all**

22 **is depending on how the ball feels in my hand on**

23 **that particular day.**

24 **So I don't think my liking to a football**

25 **could be a very psychological thing. I just want to**

1 **know that there is consistency in what I'm playing**

2 **with.**

3 COMMISSIONER GOODELL: You mentioned before

4 John --

5 THE WITNESS: Right.

6 COMMISSIONER GOODELL: -- he had set the

7 equipment, the ball guy who prepared the balls?

8 THE WITNESS: Yeah.

9 COMMISSIONER GOODELL: Was it 12.7 or 12.8?

10 THE WITNESS: Yes. I think that's what they

11 set them to; I don't know. That's what I learned

12 three weeks ago at Mr. Wells' hearing.

13 COMMISSIONER GOODELL: And so you were not

14 aware of that at the time?

15 THE WITNESS: No.

16 COMMISSIONER GOODELL: You became aware of

17 that after the Jet game?

18 THE WITNESS: After the Jet game, yeah. I

19 didn't know historically what we had set them at

20 until before I think I met with Mr. Wells, and I

21 think John had told Mr. Goldberg.

22 COMMISSIONER GOODELL: But after the Jet

23 game, you said you wanted it down to 12.5?

24 THE WITNESS: Right, right.

25 COMMISSIONER GOODELL: So you made that

1 determination after the Jet game, but before you met
2 with Ted Wells?

3 THE WITNESS: Yes.

4 Q. So there came a time that you decided your
5 preferred pressure level was 12.5, correct?

6 A. Yes, after the Jet game.

7 Q. And the reason that 12.5 was your preferred
8 pressure level was because you like the balls
9 inflated at the low end of the permissible range; is
10 that fair?

11 A. I'm not sure what you are asking.

12 Q. You didn't just pick 12.5 randomly, correct?

13 A. No, we picked 12.5 because that was -- I
14 don't know why we picked 12.5. We could have picked
15 12.6. I don't even remember it being a part of that
16 conversation; I really don't. I don't remember
17 exactly how we set it other than I had this
18 experience at the Jet game where the balls were at
19 16.

20 I didn't like that. That's the first time I
21 ever complained. So when I say 12 and a half and 13
22 and a half, I think I made the determination let's
23 just set them at 12 and a half.

24 Q. Did there come a time that you were aware
25 that Patriots personnel were asking to instruct the

1 A. I don't remember exactly what I said. But I
2 think that speaks to how I feel about the ball. I
3 know, for example, John Hillebrand, the guy who
4 previously broke in the balls, when he would
5 condition a ball, sometimes he would put them in the
6 sauna because he felt that would get the moisture in
7 the ball.

8 And when the ball would come to the sauna,
9 the ball would probably be grossly overinflated. So
10 however, you know, that experience of a really round
11 football, until it came back to room temperature or
12 whatever, ultimately I liked a ball that I could,
13 you know, grip really loosely.

14 And just to, I think the irony of everything
15 is I don't even squeeze a football. I think that's
16 something that's really important to know is I grip
17 the ball as loosely as possible. I don't even
18 squeeze the ball and I think that's why it's
19 impossible for me to probably tell the difference
20 between what 12.5 and 12.7 or 12.9 and 13 because
21 I'm just gripping it like a golf club.

22 I've tried to explain it. It's like a golf
23 club. You don't squeeze the golf club. You handle
24 it very gently. And that's the same way I hold a
25 football.

1 referees to set the balls at 12.5?

2 A. After the Jet game, yes. When I told Dave
3 Schoenfeld and probably John, also, to bring that
4 highlighted sheet of paper to say, just so they knew
5 that -- like I said, I didn't know what the
6 protocols were for the referees.

7 So I didn't want to -- I want the referee
8 just to say, well, let's just inflate this to what I
9 like them inflated to which, I don't know, the
10 referee may say, well, I like them set at 13 or 13
11 and a half. I just wanted the referee to know that
12 this is what it said in the rule book. This is
13 Tom's preference going forward.

14 Q. And your preference was 12.5, correct?

15 A. After the Jet game.

16 Q. And that wasn't chosen randomly, but it was
17 chosen because you preferred that inflation level,
18 fair?

19 A. I never thought about the inflation level,
20 Lorin. I never in the history of my career, I never
21 thought about the inflation level of a ball.

22 Q. You had made public statements in 2009, 2010
23 observing that some quarterbacks like the balls
24 heavily inflated and other quarterbacks like the
25 ball less inflated, hadn't you?

1 Q. And a few years before the AFC Championship
2 Game in January of 2015, you had made public
3 statements to the fact that you like a deflated
4 ball, correct?

5 A. I think that was in context to a joke about
6 Rob Gostkowski spiking the football and how I felt
7 sorry for the football. And that's all I remember.

8 Q. And you said you like a deflated ball,
9 correct?

10 A. Yeah, but I didn't think it was in the
11 context of what this hearing is all about, and
12 certainly never below a permissible range.

13 Q. In any event, you knew that Patriots
14 personnel were going to tell the refs to set the
15 balls at 12.5, correct?

16 A. After the Jet game.

17 Q. At some point, you knew that was the
18 instruction, correct?

19 A. Yes, after the Jet game.

20 Q. And did you know who on behalf of the
21 Patriots was going to provide that instruction to
22 the referees?

23 A. No.

24 Q. Did you know that the referees checked the
25 air pressure of the ball in the officials' locker

1 room?

2 **A. I had no idea what the referees' processes**
3 **were.**

4 **Q.** Did you know that the Patriots had an
5 officials' locker room attendant on game days?

6 **A. No.**

7 **Q.** And what was your understanding as to how the
8 referees would be informed that the preference was
9 for the balls to be inflated at 12.5?

10 **A. I never, you know, really thought about it**
11 **other than giving the, like I said, telling Dave to**
12 **show this to the referee whenever they meet with the**
13 **referees. I know the coaches meet with the referees**
14 **before the games.**

15 **I know the referees come to the training room**
16 **from time to time. So whenever Dave would come in**
17 **contact with a referee or John, make sure they tell**
18 **them that this is what we wanted.**

19 COMMISSIONER GOODELL: Just so I'm clear,
20 this whatever you wanted to show them was the rule?

21 THE WITNESS: Was that photocopy of the rule
22 highlighted that the balls can be put between 12.5
23 and 13.5. So we put them at 12.5 and I didn't want
24 them to just arbitrarily add significant air to
25 them.

1 **Q.** And before the AFC Championship Game, you say
2 you didn't know Jim McNally's name, but you knew who
3 he was, correct?

4 **A. I knew his face.**

5 **Q.** And did you know what his responsibilities
6 were?

7 **A. He worked in the equipment room and that's a**
8 **lot of the game-day employees that work, that come**
9 **in for, you know, game days, there's a lot more**
10 **people around the stadium when there's a game than**
11 **obviously when there's a normal day of the week,**
12 **practice.**

13 **Q.** What was your understanding, if any,
14 regarding his responsibilities to bring the balls to
15 the ref before the game?

16 **A. I wasn't sure.**

17 **Q.** And did you see in the investigative report,
18 the Paul, Weiss investigative report that
19 Mr. Jastremski has stated that you knew Mr. McNally
20 and his role as an officials' locker room attendant?
21 Did you see that in the report?

22 **A. Yes.**

23 **Q.** And do you think that's inaccurate?

24 **A. Yes.**

25 **Q.** And did you read in the report that

1 Mr. McNally has said that he had been personally
2 told by you of your inflation level preference
3 during the 2014 season? Did you see that in the
4 report?

5 **A. I saw it and I don't ever remember that.**

6 **Q.** I know that Mr. Kessler asked you a number of
7 questions about telephone conversations you had with
8 John Jastremski after the AFC Championship Game. I
9 want to ask you just a couple more questions about
10 that.

11 And I think it would be helpful if you had a
12 copy of the report in front of you when I ask you
13 these questions. Do you have a copy of the report
14 in front of you?

15 **A. I don't think so.**

16 **Q.** We have another one.

17 THE WITNESS: Thank you.

18 COMMISSIONER GOODELL: Are we done with all
19 this other stuff?

20 MR. KESSLER: I think what we used you can
21 move away.

22 **Q.** So I will ask you, Mr. Brady, to turn to
23 page 101 of the report. At the bottom of the page,
24 you will see there's a Roman Numeral VI that says,
25 "Communications following the AFC Championship Game"

1 and there's a reference to January 19th, the day
2 after the AFC Championship Game.

3 It says, "Jastremski and Brady spoke to each
4 other on the telephone four times on January 19th
5 for a total of 25 minutes and two seconds. They
6 also exchanged a total of 12 messages."

7 Do you have any reason to think that that's
8 not accurate?

9 **A. No.**

10 **Q.** And do you know whether in the six months
11 prior to January 19, 2015, you had ever communicated
12 with John Jastremski by text?

13 **A. I'm not sure.**

14 **Q.** And do you know whether in the six months
15 prior to January 19, 2015, you had ever communicated
16 with John Jastremski by telephone?

17 **A. Yes.**

18 **Q.** How many times?

19 **A. I think once or twice.**

20 COMMISSIONER GOODELL: Just so I am clear,
21 once or twice in the six months prior to the
22 Championship Game?

23 THE WITNESS: Yes.

24 **Q.** If you turn to page 102, there is a reference
25 a text message sent by John Jastremski to you on

1 January 19th at 7:25 in the morning. It says, "Call
2 me when you get a second."
3 And the report says underneath that, "Brady
4 called Jastremski less than one minute later and
5 they spoke for 13 minutes and four seconds."

6 Do you see that?

7 **A. Yes.**

8 **Q.** And do you have any reason to believe that's
9 inaccurate?

10 **A. No.**

11 **Q.** Do you recall what you discussed during that
12 13 minutes and four seconds with John Jastremski?

13 **A. I don't remember exactly what we talked**
14 **about.**

15 **Q.** So let me ask you to turn to page 104 of the
16 report. Under number 3, it says, "Approximately two
17 and a half hours after they first spoke on the
18 morning of January 19th, Brady followed up with
19 Jastremski by text messages."

20 Do you see that?

21 **A. Yes.**

22 **Q.** And do you have any reason to question the
23 timing of the text messages referred there, the text
24 starting at 9:51 in the morning?

25 **A. No.**

1 **Q.** Let me ask you to turn the page, look at
2 page 105. At the top of the page, Mr. Kessler
3 already asked you about those January 19th text
4 messages. And then the next box down lower is the
5 text exchange where you asked John Jastremski to,
6 "Come to the QB room."

7 Do you see that?

8 **A. Yes.**

9 **Q.** And when Mr. Jastremski came to the
10 quarterback room, did you have a discussion with
11 him?

12 **A. Yes.**

13 **Q.** And about how long did that discussion last?

14 **A. I don't remember; probably pretty brief.**

15 **Q.** To your knowledge, had Mr. Jastremski ever
16 been in the quarterback room before?

17 **A. I have no idea.**

18 **Q.** Do you ever recall him being in the
19 quarterback room before?

20 **A. I don't remember. I'm not -- I don't know**
21 **where he has been or where he's not been.**

22 **Q.** If he says that's the first time he's ever
23 been in the quarterback room, you have no basis to
24 dispute that, do you?

25 **THE WITNESS: No.**

1 COMMISSIONER GOODELL: Can I ask, Tom,
2 whether he had ever been in the quarterback room
3 with you before?

4 **THE WITNESS:** I don't remember. There was a
5 lot of renovations done to the stadium. I don't
6 know if he was in the old quarterback room. But I
7 would say the quarterback room is in, like, the
8 hallway. I mean, you probably walk by this room 50
9 times a day. It's, like, right on Main Street.

10 **Q.** But if Mr. Jastremski says that is the first
11 time he was ever in the quarterback room, you have
12 no reason to doubt that, correct?

13 **A. No.**

14 **Q.** And do you recall what the two of you
15 discussed in the quarterback room?

16 **A. I don't remember. I was getting ready, like**
17 **I said, I was watching a lot of film on the Seattle**
18 **stuff. The computers weren't ready to bring home,**
19 **so I decided to stay at the office. And I was**
20 **thinking about the Super Bowl and figured I would**
21 **text him to say, Come see me here rather than, like**
22 **I said, me to go track him down at that time of the**
23 **day.**

24 **Q.** Incidentally, if that was Mr. Jastremski's
25 first time in the quarterback room, about how many

1 years had he been with the Patriots up to that
2 point, if you know?

3 **A. 12.**

4 **Q.** Let me ask you to turn the page.

5 **A. Can I say something else? There was a lot of**
6 **renovation done to our stadium in the last year. So**
7 **that particular quarterback room has been around for**
8 **one year. We moved in at the start of last season.**
9 **So, anyway --**

10 **Q.** Directing your attention to page 106 of the
11 report. Under the heading number 4 that says,
12 "Jastremski speaks again with both McNally and
13 Brady," there's a reference at the bottom of that
14 page and it says, "At 5:21, Brady sent Jastremski
15 the following text message."

16 And this is still on January 19, 2015 at
17 5:21, a text messages that says, from you to John
18 Jastremski, "If you get a sec, give me a call."

19 Do you see that?

20 **A. Yes.**

21 **Q.** And if you turn the page to 107, it says,
22 "Jastremski called Brady 11 seconds later. And over
23 the course of three calls, they were on the
24 telephone for 11 minutes and 58 seconds."

25 Do you see that?

1 **A. Yes.**

2 **Q.** And the third entry of those three block
3 messages is, "Telephone call," again, on
4 January 19th, at 5:30 between you and John
5 Jastremski that lasted 11 minutes and one second.

6 Do you see that?

7 **A. Yes.**

8 **Q.** And do you recall what you and John
9 Jastremski discussed during that
10 11-minutes-and-one-second telephone call?

11 **A. I don't remember exactly what we discussed.**
12 **But like I said, there was two things that were**
13 **happening. One was the allegations which we were**
14 **facing and the second was getting ready for the**
15 **Super Bowl, which both of those have never happened**
16 **before. So me talking to him about those things**
17 **that were unprecedented, you know, he was the person**
18 **that I would be communicating with.**

19 **Q.** And you see down a little lower on page 107
20 there's a reference to, "Later that evening, McNally
21 called Jastremski twice and they spoke for
22 13 minutes and 34 seconds."

23 And there are references to two different
24 telephone conversations between McNally and
25 Jastremski at 7:30 and then again at 10:26, the

1 first call lasting eight minutes and 24 seconds, the
2 next call lasting five minutes and 10 seconds.

3 Did Mr. Jastremski tell you during any of
4 your telephone conversations that he was
5 simultaneously in contact or close to simultaneously
6 in contact with Mr. McNally?

7 **A. No.**

8 **Q.** Turn the page to page 108. This is the next
9 day, January 20, 2015. The report says, "Jastremski
10 and Brady spoke to each other twice by telephone on
11 January 20, 2015 for a total of nine minutes and
12 55 seconds."

13 Do you see that?

14 **A. Yes.**

15 **Q.** And do you have any reason to doubt the
16 timing described in the report there?

17 **A. No.**

18 **Q.** And there's a text in the middle of the page
19 from John Jastremski to you at 7:24 in the morning.
20 It says, "Call me when you get a second."

21 Do you see that?

22 **A. Yes.**

23 **Q.** And the report says underneath, "Brady called
24 Jastremski within the hour and they spoke for six
25 minutes and 21 seconds."

1 And this is the morning of January 20th. Do

2 you recall what you discussed with John Jastremski
3 during that six-minute-and-21-second call?

4 **A. I don't remember exactly what we talked**
5 **about.**

6 **Q.** And down lower on the page at 1:08, it says,
7 "At 5:13 on January 20th, Brady again checked in
8 with Jastremski by text messages."

9 And it refers to a text messages sent by you
10 to John Jastremski at 5:13 on January 20th that
11 says, "You doing good?"

12 Do you see that?

13 **A. Yes.**

14 **Q.** Do you have any reason to doubt the timing of
15 that text message?

16 **A. No.**

17 **Q.** And if you turn the page to page 109, at the
18 top of the page, it says, "Jastremski called Brady
19 less than 15 minutes later and they spoke for three
20 minutes and 34 seconds."

21 Do you recall what you discussed with John
22 Jastremski during that referenced phone call?

23 **A. I don't remember exactly what we talked**
24 **about, but like I said, this was an unprecedented**
25 **time for myself and for John going to the Super**

1 **Bowl. I also told you that there were, I would say**
2 **during the football season, I'm basically at the**
3 **football stadium every day.**

4 **On this particular week, there was a couple**
5 **days that we had off, so if I did need to**
6 **communicate with John about the footballs, I would**
7 **do it from home and I wouldn't be at the stadium.**
8 **So it would be hard to do. But typically during the**
9 **season, I'm at the stadium every day.**

10 COMMISSIONER GOODELL: So you weren't in the
11 office or at the stadium on the 19th or 20th?

12 THE WITNESS: I think the day after the game,
13 we went in and then I think we had two days after
14 that. So the Tuesday, Wednesday we were off. And I
15 think we practiced Thursday, Friday, Saturday.

16 COMMISSIONER GOODELL: And you wouldn't have
17 gone in?

18 THE WITNESS: I don't think I went in. I
19 think I just stayed at home and worked those two
20 days.

21 **Q.** And directing your attention to the bottom of
22 page 109, there's a block referring to a text
23 message at 7:27 in the morning on January 21st from
24 you to John Jastremski.

25 It says, "Hey, bud, give me a call when you

1 get a sec."
 2 And the report states underneath that, "For
 3 the third straight morning, Jastremski and Brady
 4 spoke by phone, this time for 13 minutes and 47
 5 seconds starting at 7:38 a.m. They spoke again for
 6 seven minutes and five seconds at 11:45:16 a.m."
 7 Do you see that?
 8 **A. Yes.**
 9 **Q.** Do you have any reason to doubt the timing of
 10 the phone calls referenced in the report?
 11 **A. No.**
 12 **Q.** Do you recall the substance of either of
 13 those two telephone calls referenced in the report?
 14 **A. I don't remember exactly what we talked**
 15 **about, but like I said, there were two things**
 16 **happening simultaneously and I really wanted John**
 17 **focused other than what he needed to get**
 18 **accomplished with the footballs, so I was trying to**
 19 **make sure that he was good and that, you know, he**
 20 **felt responsible for, you know, the attacks.**
 21 **And I was trying to make sure that he was**
 22 **composed so that he could do his job over the course**
 23 **of the next two weeks.**
 24 **Q.** Have you seen the text messages referenced in
 25 the report sent between Jim McNally and John

1 Jastremski referring to inflating footballs,
 2 deflating footballs, "The only thing deflating
 3 Sunday is his passer rating?"
 4 Have you seen those text messages?
 5 **A. In the report, yes.**
 6 **Q.** And have you seen the text message referenced
 7 in the report in which Jim McNally before the
 8 2014/2015 season, he refers to himself as "the
 9 deflator" and says he "hasn't gone to ESPN yet"?
 10 Have you seen that one?
 11 **A. Yes.**
 12 **Q.** And when you saw those text messages in the
 13 report, did they give you any concern?
 14 **A. I'm not really sure what the context of those**
 15 **text messages were between those two guys, so it's**
 16 **hard for me to speculate on what they talked about,**
 17 **the kind of language they use with one another. So**
 18 **obviously, those text messages didn't involve me.**
 19 **I didn't know the spirit of their**
 20 **relationship, so I think it was kind of unfair for**
 21 **me to speculate that they did something wrong when**
 22 **they told me they didn't do anything wrong.**
 23 **Q.** So it didn't raise any concerns for you at
 24 all?
 25 **MR. KESSLER:** Wait. After he read the

1 report, you are asking?
 2 **MR. REISNER:** No.
 3 **Q.** The text messages referring to "inflation,"
 4 "deflation," "needles," "cash," "the deflator,"
 5 "haven't gone to ESPN yet," none of that concerned
 6 you?
 7 **MR. KESSLER:** I have an objection. It's not
 8 established this witness ever saw those until he
 9 read the Wells report.
 10 **THE WITNESS:** Correct.
 11 **MR. KESSLER:** I want to know what he's asking
 12 him.
 13 **COMMISSIONER GOODELL:** I think he asked him
 14 when he read the report, did he have a concern, I
 15 think is what I heard.
 16 **MR. REISNER:** Yes.
 17 **Q.** When you saw those text messages?
 18 **A. Yes.**
 19 **COMMISSIONER GOODELL:** In the Wells report?
 20 **MR. REISNER:** In the Wells report.
 21 **A. Yes.**
 22 **Q.** Did they raise any concerns for you?
 23 **A. About what? About that I was involved? Is**
 24 **that what I was concerned about?**
 25 **Q.** Any concerns at all. Did they raise concerns

1 that something improper was happening?
 2 **A. I think that you can interpret however you**
 3 **want to interpret them. Me, personally, John said**
 4 **he didn't do it. I believe John. I never**
 5 **authorized anybody to do it.**
 6 **I never talked about doing it, so I don't**
 7 **know what else I can say. I'm on the field playing.**
 8 **He said he didn't do it. I believed him. I can't**
 9 **speculate to something that I was never there for**
 10 **that I never saw that I never talked about.**
 11 **COMMISSIONER GOODELL:** So you asked him if he
 12 had done it?
 13 **THE WITNESS:** Yes.
 14 **COMMISSIONER GOODELL:** And he said no?
 15 **THE WITNESS:** Yes, he said he didn't do it.
 16 **COMMISSIONER GOODELL:** Did you ask him if he
 17 knew anybody else that had done it?
 18 **THE WITNESS:** No, because I obviously didn't
 19 know that there was a -- that Mr. McNally -- I
 20 didn't know what his responsibilities were at the
 21 time. So John said, "We didn't do anything."
 22 **Q.** Just to be clear, when you saw the text
 23 messages that I just described --
 24 **A. Yes.**
 25 **Q.** -- in the report, did they raise any concerns

1 to you at all that something improper had happened?
 2 **A. I said it's not right for me to speculate on**
 3 **that. I don't feel like I was a part of those text**
 4 **messages. So, and I don't know what the**
 5 **relationship of those two were. Those were not text**
 6 **messages that I sent. I was not a part of those. I**
 7 **was not privy to those until after the report came**
 8 **out. I don't know what to --**

9 **Q.** Had you seen those text messages during the
 10 interview -- withdrawn. Let me start again.

11 During your interview by the Paul, Weiss team
 12 on March 6th, you were shown copies of those text
 13 messages, correct?

14 **A. Yes.**

15 **Q.** And when you saw the copies of those text
 16 messages during your interview --

17 **A. Yeah.**

18 **Q.** -- did they raise any concerns, in your mind,
 19 that something improper was happening?

20 **A. At the time, like I said, that was the first**
 21 **I saw them. So it wasn't in the context of the**
 22 **report as it's framed. Like I said, it's hard for**
 23 **me to speculate. Alls I can go by is what they told**
 24 **me, so.**

25 **MR. REISNER:** Could we have one moment.

REDIRECT/BRADY/KESSLER Page 139

1 Nothing further at this time.

2 **MR. KESSLER:** I just have a very few
 3 questions on redirect.

4 **REDIRECT EXAMINATION BY**

5 **MR. KESSLER:**

6 **Q.** So you were shown a copy of the NFL 1639?

7 **MR. KESSLER:** Give this back to the witness.

8 **Q.** This was the letter from Mr. Yee in June that
 9 you asked about. And I'm going to direct your
 10 attention to page 3 that you were asked about. It's
 11 the second reference to Mr. Jastremski. This is
 12 talking about the text messages.

13 **A. Yes.**

14 **Q.** And so, you will see that this says, "Result
 15 of search for text messages during relevant time
 16 period based on AT&T phone records."

17 Do you see that?

18 **A. Yes.**

19 **Q.** And the first one says, "McNally, there are
 20 no text messages between Brady and McNally."

21 Does that recall with your recollection that
 22 you never texted Mr. McNally for anything?

23 **A. Correct.**

24 **Q.** In fact, you didn't know him?

25 **A. Correct, well just by face.**

1 **Q.** Right. And you didn't have any relationship
 2 with Mr. McNally; is that fair?

3 **A. I mean, he worked in the equipment room. So**
 4 **you know, other than saying "hi" or, "Good to see**
 5 **you" or something like that.**

6 **Q.** Did you ever discuss footballs or deflation
 7 or psi or anything like that with Mr. McNally?

8 **A. No.**

9 **Q.** Okay. Now, then it talks about
 10 Mr. Jastremski and that's what counsel asked you
 11 about. And it says, "All of the text messages
 12 identified in the Wells report between Brady and
 13 Jastremski show up on the phone records."

14 And then it says, "The bills reflect an
 15 additional text message from Jastremski to Brady at
 16 the same time as the others reflected in the Wells
 17 report."

18 And then it says that, "The phone bills also
 19 show three text messages exchanged on February 7,
 20 2015 between 8:21 and 8:33."

21 You see that?

22 **A. Yes.**

23 **Q.** And those are the ones that counsel asked you
 24 to identify, correct?

25 **A. Yes.**

REDIRECT/BRADY/KESSLER Page 141

1 **Q.** So I'm now going to ask you the question that
 2 he didn't ask you. In that text message, do you
 3 recall whether there was any discussion of deflation
 4 or pressure or the Wells investigation or anything
 5 else that you recall in those text messages?

6 **A. Absolutely not.**

7 **Q.** Okay. For all the text messages you've ever
 8 sent Mr. Jastremski, okay, including all the ones
 9 that were identified on January 19th, January 20th,
 10 January 21st, did you ever discuss with him -- did
 11 he ever tell you that he deflated any footballs?

12 **A. No.**

13 **Q.** Did he ever tell you that anyone else ever
 14 deflated any footballs?

15 **A. Absolutely not.**

16 **Q.** Did you ever discuss with him any effort to
 17 conceal any deflation of footballs from
 18 investigators or anything else?

19 **A. Absolutely not.**

20 **Q.** What was your main focus from after the AFC
 21 Championship Game until the Super Bowl? What were
 22 you mostly focused on?

23 **A. The Super Bowl.**

24 **Q.** Okay. What did you want Mr. Jastremski to
 25 mostly be focused on?

1 **A. The Super Bowl.**
 2 **Q.** Did you tell him that?
 3 **A. Absolutely.**
 4 **Q.** Were you concerned that he might get
 5 distracted by these other allegations being made?
 6 **A. Absolutely.**
 7 **Q.** Okay. And was that something you would have
 8 discussed with him, he needs to focus on the Super
 9 Bowl?
 10 **A. Absolutely.**
 11 **Q.** Now, do you recall that during this period of
 12 time, this two-week period of time, even
 13 Coach Belichick was distracted by this and had a
 14 news conference about ball deflation?
 15 **A. Yes.**
 16 **Q.** Okay. How long have you known
 17 Coach Belichick?
 18 **A. 16 years.**
 19 **Q.** Okay. When he is focused on the Super Bowl,
 20 does he usually get distracted by anything else
 21 other than Super Bowl game preparation?
 22 **A. No.**
 23 **Q.** Was it unusual for him to get up and have a
 24 press conference about something else other than
 25 Super Bowl?

RECROSS/BRADY/REISNER Page 143

1 **A. Yes.**
 2 **Q.** Did Coach Belichick ever tell you that he
 3 knew anything else about ball deflation?
 4 **A. No.**
 5 **Q.** Anyone else in the Patriots organization ever
 6 tell you that?
 7 **A. No.**
 8 MR. KESSLER: I don't have any further
 9 questions.
 10 MR. REISNER: I just have very briefly one or
 11 two.
 12 RECROSS-EXAMINATION BY
 13 MR. REISNER:
 14 **Q.** During the telephone calls that you had with
 15 John Jastremski on January 19th and 20th and 21st
 16 that I asked you about, at that time, you knew that
 17 questions had been raised about the inflation levels
 18 of the footballs used during the AFC Championship
 19 Game, correct?
 20 **A. Yes.**
 21 **Q.** And during these telephone calls with
 22 Mr. Jastremski, did you discuss with him the fact
 23 that questions had been raised about the inflation
 24 levels of the footballs?
 25 **A. It's possible, yes.**

1 **Q.** And did you discuss with him any concerns
 2 that he might have about questions being raised on
 3 that topic?
 4 **A. It's possible, yes.**
 5 **Q.** What do you recall about that, if anything?
 6 **A. Well, that they would be directed at him and**
 7 **that he was the person that prepared the footballs**
 8 **and like I said, the initial report was that none of**
 9 **the Colts' balls were deflated, but the Patriots,**
 10 **all the Patriots' balls were.**
 11 **So I think trying to figure out what happened**
 12 **was certainly my concern and trying to figure out,**
 13 **you know, what could be -- possibly could have**
 14 **happened to those balls.**
 15 **Q.** And Mr. Kessler asked you about one of the
 16 e-mails that you exchanged during that time
 17 period -- pardon me -- one of the text messages that
 18 you exchanged during that time period. That's on
 19 page 105.
 20 The e-mail that John Jastremski sent --
 21 pardon me -- it's a text that John Jastremski sent
 22 to you on January 19th at 10:54 in the morning, the
 23 one that says, "FYI, Dave will be picking your brain
 24 later about it. He's not accusing me or anyone,
 25 just trying to get to the bottom of it. He knows

RECROSS/BRADY/REISNER Page 145

1 it's unrealistic you did it yourself."
 2 Around that time, were you aware that Dave
 3 Schoenfeld had been tasked with the responsibility
 4 to look into the ball deflation issues?
 5 **A. What do you mean?**
 6 **Q.** Were you aware that Dave Schoenfeld --
 7 **A. Yeah.**
 8 **Q.** -- had been tasked the responsibility by
 9 somebody at the Patriots to look into the ball
 10 deflation issues?
 11 **A. No.**
 12 **Q.** And during the text exchanges referenced
 13 there on January 19th, this was around the time that
 14 you were having telephone calls with John Jastremski
 15 as well, correct?
 16 **A. Yes.**
 17 **Q.** And you say that it is possible that you and
 18 John Jastremski were discussing the concerns that
 19 had been raised about ball deflation levels, right?
 20 **A. Yes.**
 21 MR. REISNER: Nothing further.
 22 MR. KESSLER: Nothing from me. Perhaps the
 23 Commissioner has some questions?
 24 COMMISSIONER GOODELL: I do have a couple.
 25 Can you go back to, I believe you said you changed

1 the process prior to the Championship Game, the way
 2 you prepared the balls?
 3 THE WITNESS: Yes.
 4 COMMISSIONER GOODELL: On Friday afternoon,
 5 essentially --
 6 THE WITNESS: Yes.
 7 COMMISSIONER GOODELL: -- you made that
 8 change?
 9 THE WITNESS: Yes.
 10 COMMISSIONER GOODELL: Did you guys go into
 11 the -- did you ever walk through to observe the
 12 stadium on Saturday?
 13 THE WITNESS: Yes.
 14 COMMISSIONER GOODELL: You did?
 15 THE WITNESS: Yes.
 16 COMMISSIONER GOODELL: Yes?
 17 THE WITNESS: Yes.
 18 COMMISSIONER GOODELL: And did you guys
 19 communicate by phone on that change or was it at the
 20 office?
 21 THE WITNESS: At the office.
 22 COMMISSIONER GOODELL: It was all at the
 23 office or the stadium?
 24 THE WITNESS: Yes.
 25 COMMISSIONER GOODELL: And that process went

1 basically Friday, Saturday and then Sunday you
 2 approved or didn't approve of the balls,
 3 essentially?
 4 THE WITNESS: Yes.
 5 COMMISSIONER GOODELL: Would the equipment
 6 managers do anything without your approval,
 7 essentially, that you are aware of with the
 8 footballs, just specifically the footballs?
 9 THE WITNESS: I have --
 10 COMMISSIONER GOODELL: I know it's a tough
 11 question, but I'm trying to understand would they --
 12 you cared about the feel, they knew that from the
 13 process?
 14 THE WITNESS: Yes.
 15 COMMISSIONER GOODELL: So would they have
 16 done anything that was inconsistent with what you
 17 wanted with the footballs?
 18 THE WITNESS: I don't think so, and that's
 19 why I believe they didn't do anything, because I
 20 know that, you know, how particular I am with the
 21 way that the ball feels. So I don't think that
 22 anyone would tamper with the ball.
 23 COMMISSIONER GOODELL: So it would be done
 24 consistent with the way you wanted balls,
 25 essentially?

1 THE WITNESS: Yeah. But once -- yes. Once I
 2 picked the balls, that's ultimately the ones I want
 3 to be able to play with.
 4 COMMISSIONER GOODELL: Okay, I am good.
 5 MR. KESSLER: Anything else?
 6 COMMISSIONER GOODELL: Thank you, Tom.
 7 Appreciate it. Thank you.
 8 MR. KESSLER: Should we take our lunch break
 9 now?
 10 COMMISSIONER GOODELL: I think we should.
 11 MR. KESSLER: Let's keep it short, I guess.
 12 I assume you guys, we have food here, so let's say a
 13 half hour?
 14 COMMISSIONER GOODELL: Gregg can handle that.
 15 MR. LEVY: Yeah. How much time would you
 16 like?
 17 MR. NASH: Whatever is your preference.
 18 COMMISSIONER GOODELL: He's saying
 19 30 minutes.
 20 MR. KESSLER: Let's try a half hour just so
 21 that we can make sure --
 22 MR. NASH: Who is your next witness?
 23 MR. KESSLER: Well, we are going to move into
 24 evidence, our declarations and then we are going to
 25 call the expert, Mr. Snyder.

1 COMMISSIONER GOODELL: So let's come back at
 2 five minutes after 1:00.
 3 (Recess taken 12:36 p.m. to 1:07 p.m.)
 4 MR. LEVY: We are back on the record.
 5 MR. KESSLER: So at this point, to the degree
 6 that it's required, we will move into evidence. The
 7 Declaration of Robert Kraft, which I think speaks
 8 for itself. And we do urge you, Commissioner, to
 9 read that declaration.
 10 Essentially, it's Mr. Kraft telling you about
 11 his experience with Mr. Brady and what Mr. Brady has
 12 told him about this situation, which is essentially
 13 what he told you under oath today and how Mr. Kraft
 14 values his honesty and integrity in this matter.
 15 And so we move that declaration in.
 16 And then the second declaration is -- two
 17 declarations from Mr. Maryman, which are the
 18 declarations that explain how the e-mail search was
 19 done on Mr. Brady's computers, and no incriminating
 20 files were found, although the search was done in
 21 exactly the way it was requested by Mr. Wells. And
 22 what was done forensically for the two telephones
 23 that existed and, in addition, the telephone logs
 24 which have been moved into evidence. So that now
 25 all should go before you.

1 MR. LEVY: Hearing no objection, they will be
2 admitted into evidence.

3 MR. KESSLER: Thank you. I'm now going to
4 pass the baton to Mr. Greenspan who is going to
5 present the testimony of Mr. Snyder.

6 MR. GREENSPAN: The NFLPA calls as its next
7 witness, Edward Snyder.

8 **EDWARD SNYDER**, called as a witness,
9 having been first duly sworn by a Notary Public of
10 the State of New York, was examined and testified as
11 follows:

12 DIRECT EXAMINATION BY

13 MR. GREENSPAN:

14 Q. Would you state your full name for the
15 record.

16 A. My name is Edward A. Snyder.

17 Q. And your current position?

18 A. I am Dean of the Yale School of Management.
19 I am also a professor of economics and management at
20 Yale.

21 Q. And your position prior to your time at Yale?

22 A. I have been at Yale for four years, and prior
23 to that, the previous ten years, I was at University
24 of Chicago, where I was also Dean and I was the
25 George Schultz Professor of Economics.

1 Q. And prior to the University of Chicago, where
2 did you work?

3 A. I was Dean at University of Virginia, Darden
4 School, and previously to that, I was at University
5 of Michigan Business School where I was Senior
6 Associate Dean.

7 Q. And what has been the focus of your teaching
8 and your scholarship, Dean Snyder?

9 A. Well, I'm an economist. And I have a
10 specialty in what's called industrial organization.
11 And throughout my academic career, I've done a lot
12 of empirical work and with that empirical work, I
13 study data, collect data and apply statistical
14 models and analyses to data.

15 Q. Let me stop you and focus on your statistical
16 work, your statistical experience. And if you could
17 elaborate in terms of the type of work you've done,
18 type of industries you've covered.

19 A. Well, the type of work I did, to take the
20 first part of this, it started when I did my Ph.D.
21 thesis. I studied criminal antitrust enforcement
22 and I collected data on the change in criminal
23 penalties from the misdemeanor level to the felony
24 level. These were original data. And I collected
25 all the -- all the enforcement data over two decades

1 and applied statistical analyses to them.

2 And then after that, I worked with former
3 Assistant Attorney General of the U.S. Department of
4 Justice's Antitrust Division, Tom Kuiper. We did
5 three studies involving analysis of private
6 antitrust enforcement, also original data
7 application of statistical analysis to those data.

8 In terms of the industries, the other part of
9 your question, I've studied virtually -- well, it's
10 a real wide range of industries, and in large part
11 through my consulting.

12 Q. Let me ask you, have you taught classes
13 involving study of data, application of statistics?

14 A. Yes. One of the ones that is noteworthy is
15 when I was at Chicago, over a nine-year period I
16 co-taught with Gary Becker, Nobel Prize winner in
17 economics, and Kevin Murphy, Clark Medalist in
18 economics. That's the award given to the top
19 economist under 40.

20 Obviously I was -- I enjoyed teaching with
21 those two luminaries. But the nature of that course
22 was what I call a project course. And we supervised
23 teams of Master's students who went out and
24 collected data.

25 And over the course of that nine-year period,

1 we supervised about 100 Master's-level projects that
2 involved the collection of data and the application
3 of statistical analysis to data for the purpose of
4 developing insights on public policy and business.

5 Q. Okay. How about work in litigation? Have
6 you served as an expert witness previously?

7 A. Yes. I left the antitrust division in 1985
8 and since then, so it's been about 30 years, I've
9 done about one major litigation a year. So it adds
10 up to about 30.

11 Q. And through the course of those litigation,
12 you mentioned consulting work; would you identify
13 just sort of a broad brush overview of some specific
14 industries in which you've examined data, dealt with
15 statistical analyses?

16 A. Sure. It's a wide range. It's
17 pharmaceuticals. It's steel. It's paper,
18 publication paper. It's infant formula. It's the
19 LCD screens that we all use now. It's computer
20 chips. It's stock exchanges. It's financial data.
21 It's vitamins, virtually all these different slices
22 of the economy. And each one of those engagements
23 involves data.

24 Q. Let's talk for a moment about your work as
25 dean. You have been a business school dean for

1 about 20 years. What do your responsibilities --
 2 what have your responsibilities as dean entailed?
 3 **A. As dean, I, of course, represent the**
 4 **institution. I am responsible for the people and**
 5 **programs. I view myself as sort of the person who**
 6 **develops the strategy for the school and I'm**
 7 **responsible for the finances of the school. And I**
 8 **keep in mind the quality of the work that's done and**
 9 **the integrity of the institution.**
 10 **Q.** You mentioned you have responsibility for the
 11 people of the school. If you could speak more about
 12 those responsibilities as dean.
 13 **A. Well, I'm an HR person, too. So the school**
 14 **connects with a lot of people. The ones who were**
 15 **immediate to the community are the students and the**
 16 **faculty and the professional staff.**
 17 **And, of course, people come and go, so**
 18 **there's a question of who gets admitted, who gets**
 19 **fired, who gets let go, who gets promoted, who gets**
 20 **evaluated positively, who gets evaluated negatively.**
 21 **In some cases there are disciplinary actions**
 22 **and all those things, I'm not involved in every**
 23 **decision, but I have to manage the processes**
 24 **associated with those and in some cases, they do**
 25 **come up to me.**

1 **Q.** Thanks.
 2 So turning to the matter at hand, what were
 3 you asked to do? What was your assignment in this
 4 matter?
 5 **A. My assignment focuses on the work done by**
 6 **Exponent, the science firm brought in to evaluate**
 7 **the question of potential deflation of the Patriots'**
 8 **balls during the AFC Championship Game.**
 9 **Q.** Okay. Did you have any help, anyone work
 10 with you on this assignment?
 11 **A. Yes. I had a team. Professor Michael Moore**
 12 **from Northwestern University, a long-time colleague**
 13 **of mine, Pierre Cremieux, Principal Manager at**
 14 **Analysis Group, other members of the Analysis Group**
 15 **people, Dr. Jimmy Royer, Mr. Paul Greenberg, and**
 16 **that constituted the team.**
 17 COMMISSIONER GOODELL: Were these people in
 18 your consultancy group or were these selected by
 19 you?
 20 THE WITNESS: It's an interesting question.
 21 I'm not sure how much information you want,
 22 Mr. Commissioner.
 23 COMMISSIONER GOODELL: Not a lot. I was
 24 hoping for "yes" or "no."
 25 THE WITNESS: Professor Moore and I started

1 doing this really just out of our own interest. And
 2 then we got linked up to Analysis Group and they
 3 were doing some work independently. And I don't --
 4 COMMISSIONER GOODELL: So you have worked
 5 together before?
 6 THE WITNESS: I have worked with Analysis
 7 Group and I have known Professor Moore for 35 years.
 8 **Q.** So these individuals, do they have experience
 9 in statistical work?
 10 **A. Yes, it's a deep, deep bench in terms of**
 11 **expertise.**
 12 **Q.** Was there anyone else that you consulted with
 13 in the course of this project?
 14 **A. Yes. I consulted with Mr. Dirk Duffner. He**
 15 **has a Master's Degree from Stanford. He's a former**
 16 **Exponent employee, worked there for decades. And**
 17 **now he runs his own firm.**
 18 **Q.** And this is Exhibit 196 we have up. What was
 19 the purpose of your consulting with Mr. Duffner?
 20 **A. Let me just preface that by saying the**
 21 **following: Exponent did both scientific analyses,**
 22 **as well as statistical analyses. I was not hired or**
 23 **retained and my assignment doesn't deal with the**
 24 **science. I took my science as a given, their**
 25 **scientific framework as a given. I focused on the**

1 **statistics.**
 2 **In the course of making adjustments to the**
 3 **statistics, and correcting for errors, and**
 4 **evaluating alternative assumptions, however, I**
 5 **wanted to make sure that I wasn't doing anything**
 6 **wrong in terms of scientific principles.**
 7 **So out of an abundance of caution, I checked**
 8 **with Mr. Duffner to make sure that indeed what I was**
 9 **doing was consistent with scientific principles.**
 10 **Q.** How did you go about evaluating Exponent's
 11 work? And by that, what I mean in general terms,
 12 what did you do?
 13 **A. Well, in very general terms, I identified**
 14 **what data they had collected, how they had organized**
 15 **the data and rearranged the data. And I will**
 16 **explain this, I identified their major statistical**
 17 **analyses.**
 18 **One has already been referred to earlier**
 19 **today, the focuses on the question of the difference**
 20 **in the extent of average pressure drops. So I**
 21 **identified these major statistical analyses. I then**
 22 **identified how they did the analyses. Did they make**
 23 **any errors, what assumptions were they making when**
 24 **they conducted these analyses.**
 25 **I just pause on the last point. I was**

1 particularly focused on that last point because it's
2 important for me as a researcher and evaluator of
3 data when I see alternative assumptions, plausible
4 alternatives, if the findings change, then the
5 results are not reliable. So I paid attention to
6 all those steps.

7 Q. So having done that work, having applied that
8 principle, and again in general terms, what was your
9 conclusion about the work performed, the statistical
10 work performed by Exponent?

11 A. Right, given the scientific framework that
12 they provided, I can follow what they've done. Our
13 team actually replicated their key findings. They
14 made errors. When I evaluate alternative
15 assumptions, their findings change, so the bottom
16 line is their results are simply not reliable.

17 Q. Okay. So let's go, let's start with your
18 slide deck. The first slide shows your three key
19 findings. And if you could just sort of walk the
20 Commissioner through each of the three key findings
21 that you made and that we will elaborate on.

22 A. So first finding is that their analysis of
23 the difference in differences, the analysis of the
24 pressure drops and the difference in the average
25 pressure drops is wrong because Exponent did not

1 eleven Patriots' balls that were measured. They
2 were measured by Official Blakeman and
3 Official Prioleau. There were four Colts' balls
4 measured, again, by those two officials, and those
5 are the data that they focused on.

6 Q. What do we know about the sequence of the
7 measurements and the sequence of events at halftime?

8 A. After the balls were brought in, the
9 Patriots' balls were measured first and the Colts'
10 balls were measured after. How much after, there's
11 uncertainty about.

12 Q. Let's take a look at the next slide, this is
13 Exponent's Table 2. And you will see here, Dean
14 Snyder, the differences. There's a row inserted
15 "Patriots average" and "Colts average." If you
16 could discuss the importance of those figures to the
17 analysis here.

18 A. Well, this is sort of a baby step along the
19 way in doing the analysis of difference in
20 differences. One thing to note, though, and this
21 motivated Exponent to make some assumptions and
22 reorganize the data, you will see that the Patriots
23 average on the right-hand column exceeds the
24 left-hand column, 11.49 compared to 11.11.
25 For the Colts average, it's reversed. This

1 include timing and the effects of timing in that
2 analysis.

3 Secondly, Exponent looked at the variation
4 and the measurements between the Patriots' balls and
5 the Colts' balls at halftime. They compared the
6 variances. And despite conceding that there was no
7 statistically significant difference between the
8 two, they went ahead and drew conclusions, but those
9 conclusions are improper.

10 And, last, and this goes to the issue of
11 alternative assumptions, as well as error, if the
12 logo gauge was used to measure the Patriots' balls
13 before the game, then given what the framework that
14 Exponent provides us with scientifically, and if the
15 analysis is done correctly, eight of the eleven
16 Patriots' balls are above the relevant scientific
17 threshold.

18 Q. Let's turn to your first finding. We will go
19 to the next slide and start at the beginning, which
20 is the raw data. And if you would explain, what do
21 we see here on this table, which is Exponent's
22 Table 1.

23 A. This is -- this is Exponent. This is taken
24 directly from the Exponent report. These are the
25 halftime data. And you will see that there were

1 column exceeds this column (indicating). This led
2 Exponent to believe that the two officials switched
3 gauges between the time that they measured the
4 Patriots' balls and when they measured the Colts'
5 balls.

6 So one of the things that Exponent did going
7 back to the raw data was that they then said, well,
8 maybe it's better to organize the data by what they
9 presume to be the measurements by gauge.

10 Q. Let's take a look at the next slide, which is
11 Exponent's Scenario 3. It's their Table 5. And
12 what's happening here in Scenario 3 relative to that
13 raw data?

14 A. Well, now, they have organized the data by
15 gauge. And the Patriots averages don't change.
16 They have also made one more adjustment. They
17 believe that Colts ball number 3, the measurement
18 was transcribed incorrectly.

19 So if you imagine the two officials calling
20 out the numbers, somehow the person writing down the
21 numbers put them in the wrong column. So they
22 switched those. And now we have got revised
23 averages for the Colts. And 12.95 for what they
24 presume to be all the logo measurements compared to
25 12.5 for the non-logo.

1 **And one of the things I should point out here**
 2 **is there is a belief that the logo gauge, and this**
 3 **was supported by further testing by Exponent, reads**
 4 **higher. It consistently reads higher. And that's**
 5 **how they have organized the these data into what**
 6 **they call their data Scenario Number 3.**

7 **Q.** Why have you chosen to focus on their data
 8 Scenario Number 3?

9 **A.** Well, the short answer is they do. This is
 10 the data scenario that they pay the most attention
 11 to.

12 **Q.** Okay. Let's look at the next slide. And
 13 just taking a look at the quote at the top of the
 14 page, this is from the Exponent report. What does
 15 that tell you about the place of this analysis
 16 within the overall Exponent work?

17 **A.** Well, when they say, "This is the most
 18 significant," what they are saying is of all the
 19 work that they have done to analyze these results,
 20 this is what I call their core analysis, this is
 21 their most significant analysis. And it goes to
 22 this basic question, did the Patriots' balls have a
 23 bigger drop in pressure than the Colts' balls?

24 **Q.** Table 6, this is also at the bottom of your
 25 slide, this is from the Exponent report. If you

1 **The second bullet point should be emphasized**
 2 **here. The theory of the Exponent analysis, their**
 3 **most significant analysis is that the Colts' balls**
 4 **are a control for the Patriots' balls.**

5 **Q.** What does that mean, "a control"?

6 **A.** Well, let's just go slowly. I mean, it's the
 7 Patriots' balls that are being suspected of being
 8 deflated outside the rules. The Colts' balls are
 9 not being suspected of being deflated outside the
 10 rules. So the Colts' balls end up being a reference
 11 or a benchmark for what would have happened
 12 naturally. That's the idea of a control.

13 **Q.** Okay. And Exponent continues. They inquire
 14 whether your slide continues. They look at whether
 15 the greater drop was statistically significant.
 16 Could you explain the concept of "statistical
 17 significance."

18 **A.** These terms don't role off the tongue.
 19 Statistical significance here is, okay, you may see
 20 a difference in these averages, but you also
 21 realize, you have got a really puny control group.
 22 It's four Colts' balls. We have got measurement of
 23 them. We can't just say any time there's a
 24 difference, it's reliable.

25 **So what Exponent did was that they adopted**

1 could again walk us through the table and tell us
 2 what Exponent is looking at with those figures.

3 **A.** So you have got the averages now based on the
 4 different gauges. What they do is identify the drop
 5 compared to the starting values, the pre-game
 6 starting values that are presumed to be for the
 7 Colts' balls, 13.0 psi and 12.5 for the Patriots'
 8 psi.

9 **And compared to those starting values, you**
 10 **can then identify the difference in the drops by**
 11 **gauge. And those two numbers, about .7 psi says**
 12 **that the Patriots' balls dropped by .7 psi more than**
 13 **the Colts' balls.**

14 **Q.** Okay. Let's go to the next slide. And if
 15 here, if you could describe the approach taken by
 16 Exponent in comparing the relative drops in pressure
 17 of the Patriots' balls and the Colts' balls.

18 **A.** Okay. So here is their approach. It's
 19 called a difference in differences analysis. It's a
 20 standard kind of statistical approach. Here it
 21 really could be difference in average drops, just to
 22 put it in the context of what we are studying. And
 23 we have already covered the first bullet point.
 24 They have identified the differences between
 25 pre-game and average halftime psi's.

1 **the standard, which is statistical significance at**
 2 **the five-percent level. It's common in science.**
 3 **It's common in social science. That's the standard**
 4 **that Exponent did. It basically says, when we see a**
 5 **difference, when we see a difference, we want to**
 6 **make sure it's not due to chance.**

7 **Q.** In your experience, if a statistical
 8 threshold, here, the .05 is chosen, and the analysis
 9 doesn't have results that cross that threshold, what
 10 does that tell you about the analysis?

11 **A.** It's not an analysis on which you should
 12 derive findings, reach conclusions. It's not
 13 statistically significant. It doesn't -- what you
 14 see in scientific studies and whether it's testing
 15 by the FDA or careful protocols, you have
 16 statistical significance as the step that then is
 17 the basis for conclusions.

18 **Q.** What if the statistical significance is
 19 really close to that .05, but it doesn't cross that
 20 threshold, but it's on the margins?

21 **A.** You can't -- you can't go down that path,
 22 because then you keep saying, what if it's sort of
 23 close? Then you keep moving the standard. It's,
 24 you know, it's the standard. Since we are in this
 25 group, I will say it's like you don't score a

1 **touchdown unless you break the plane. You can't say**
2 **it's close.**

3 **Q.** Let's take a look at the next slide. And
4 this is now Exponent's conclusions about statistical
5 significance. And could you explain what's
6 happening here including what a p-value is.

7 **A. So this, again, is Exponent's table, Table 8.**
8 **They are reporting the results, focusing on the**
9 **question of statistical significance for four**
10 **different data scenarios.**

11 **Three is their preferred, but here they are**
12 **reporting all of them. And in the table you see**
13 **referred to here, the p-value's calculated using**
14 **Exponent's statistical model. They developed a**
15 **statistical model to evaluate the difference in**
16 **difference.**

17 **And they are saying-based on our statistical**
18 **model, the difference in average pressure drops is**
19 **statistically significant. So the p-values that**
20 **they report are well below .05; .05 is the five**
21 **percent benchmark. And they are saying our results**
22 **are statistically significant.**

23 **Q.** Because they are smaller than -- the p-value
24 is smaller than .05?

25 **A. Correct.**

1 **Q.** And what is the conclusion that they draw
2 from this statistical significance?

3 **A. This is the standard protocol. When you get**
4 **statistically significant results, then you draw**
5 **conclusions. So what's bolded here is, okay, we**
6 **have significant results.**

7 **We now say the following, "In all cases**
8 **studied, the additional pressure drop exhibited by**
9 **the Patriots' footballs is unlikely to have occurred**
10 **by chance."**

11 **Q.** What did you conclude about Exponent's
12 difference in differences work?

13 **A. Well, it's wrong. It goes back to their**
14 **basic theory, the basic idea that the Colts' balls a**
15 **control. If you want -- and I understand the idea**
16 **of using the Colts' balls as a control, but they**
17 **have to be a good control.**

18 **If they are a good control, then you can**
19 **isolate on whether the question of whether the**
20 **additional pressure drop exhibited by the Patriots'**
21 **footballs is or is not likely to have occurred by**
22 **chance.**

23 **Q.** And what was your conclusion as to whether
24 the Colts' balls served as good controls in their
25 analysis?

1 **A. They didn't, because I mentioned this**
2 **earlier. There was a sequence of events at**
3 **halftime. And the sequence of events at halftime**
4 **was that the Patriots' balls were measured first.**
5 **The Colts' balls were measured second, or even**
6 **later, depending on the sequence of halftime events.**

7 COMMISSIONER GOODELL: What would be the
8 significant time period where it becomes important
9 it exceeded that amount?

10 THE WITNESS: I am going to cover that,
11 Mr. Commissioner. But basically even if you take
12 the minimum sort of bump, three and a half minutes,
13 this p-value goes above the key threshold.

14 COMMISSIONER GOODELL: Three-and-a-half
15 minutes from the first ball to the last ball, from
16 Patriots to Colts?

17 THE WITNESS: Yeah. If you just say we are
18 going to make the Colts' balls, which are a little
19 bit warmer and a little bit dryer, and say, well,
20 what if they were, in effect, adjusted for that, and
21 they were measured when the Patriots' balls were
22 measured, this result goes away.

23 COMMISSIONER GOODELL: And who says they are
24 dryer? "Three-and-a-half minutes they get dryer."

25 THE WITNESS: Well, you can leave out dry.

1 Just do warm. In fact, that's the case I am going
2 to turn to next.

3 **Q.** Let's focus on that and go to the next slide.
4 And what does Exponent tell us about the importance
5 of time?

6 **A. Well, the Exponent report is full of**
7 **scientific guidance that says timing is important.**
8 **And they refer to basic thermodynamics. They say**
9 **it's completely expected, this top bullet point,**
10 **that a football is brought from a warmer environment**
11 **into a colder environment and then when it's brought**
12 **back into a warmer environment, that the psi will**
13 **change.**

14 **It will go, it will start high, go down and**
15 **then come up. And these variations in temperature**
16 **and pressure are time-dependent in the time ranges**
17 **at issue in the present investigation.**

18 **And then the second bullet point, especially**
19 **the bolded point, "A key factor in explaining the**
20 **difference in measurements between the Patriots' and**
21 **Colts' balls is timing." These are Exponent quotes.**

22 **Q.** And let's jump to Exponent's table. This is
23 their Figure 22. And if you could sort of walk us
24 through this figure and what it shows us about the
25 importance of time.

1 **A. Okay. So along the horizontal axis here is**
 2 **time, minute by minute. And it starts at 2:38. So**
 3 **there is a lot happening with the game before of**
 4 **this focus.**

5 **Q.** 2:38 prior to halftime?

6 **A. Right. That's when the balls are being**
 7 **brought off the field and then the locker room**
 8 **period begins at minute 2:40 and it lasts --**

9 COMMISSIONER GOODELL: I'm sorry; what was
 10 that 2:38 starts when, at the beginning of the game?

11 THE WITNESS: No, that is my understanding of
 12 when the balls are being brought off the field into
 13 the locker room.

14 COMMISSIONER GOODELL: What happens from zero
 15 to 2:37, I guess is a better --

16 THE WITNESS: First half is playing.

17 COMMISSIONER GOODELL: Zero is the start of
 18 game?

19 THE WITNESS: Yes, or some pre-game activity,
 20 yes. That's a good question. It may be when the
 21 balls are brought onto the field; I'm not sure.

22 COMMISSIONER GOODELL: That's important,
 23 wouldn't you say?

24 THE WITNESS: Well, there's plenty of time
 25 according to Exponent. I'm not here to question

1 **this curve (indicating).**

2 **Q.** Let's take a look at, it's our Slide 10, this
 3 is another quote from Exponent. And if you could
 4 talk about the significance of the bolded language,
 5 again, in terms of your analysis of the importance
 6 of timing at halftime.

7 **A. Well, there's a strong dependence on time.**
 8 **(Reading): "Specifically, the pressure in a**
 9 **football measured immediately" -- here I'm**
 10 **quoting -- "Specifically, the pressure in a football**
 11 **measured immediately after coming into the locker**
 12 **room will be significantly lower as compared to the**
 13 **pressure measured in the same football once it has**
 14 **sat and warmed up in the locker room for several**
 15 **minutes." That's from Exponent.**

16 **Q.** So let's go to our Slide 12. And what is
 17 this showing?

18 **A. This takes the earlier Figure 22, and I will**
 19 **refer to that again. It takes the top schedule,**
 20 **what Exponent calls their transient analysis, that's**
 21 **their scientific framework.**

22 **It says, okay, you bring in a Colts' ball.**
 23 **It was pre-game at 13. It's brought right into the**
 24 **locker room. It's going to be 11.87. This is,**
 25 **like, so 2:40 is, like, in locker room terms, it's**

1 that, but there's plenty of time for the balls --
 2 you take the assumption that the Colts' balls were
 3 at 13.0.

4 There's plenty of time, whether it's 2:38 or
 5 2:10 or 2:00 or 2:50 for the Colts' balls to
 6 equilibrate to basically this level, assuming that
 7 they are dry (indicating) or this level assuming
 8 they are wet, and the same thing for the Patriots'
 9 balls, to equilibrate.

10 **Q.** Dean Snyder, what's happening with the psi of
 11 the balls right before they are brought into the
 12 locker room, so between minute 2:38 and minute 2:40?

13 **A. Nothing, really.**

14 **Q.** Okay. And then what do we see happens to the
 15 pressure of the balls once they are brought into the
 16 locker room at minute 2:40?

17 **A. Well, they warm up. So going back to the**
 18 **Commissioner's question, let's put aside the issue**
 19 **of moisture and just focus on the dry schedules.**
 20 **The top one is 13.0 psi dry. That would correspond**
 21 **to a Colts' ball that's dry.**

22 **And it comes into the locker room right here**
 23 **(indicating). It's at this level and then it warms**
 24 **up. It follows this transition curve. And a**
 25 **Patriots' ball that's dry comes in lower and follows**

1 **minute zero. And then 12 minutes later, it's warmed**
 2 **up and it's roughly 1.1 psi greater in 12 minutes.**

3 **Q.** The same ball?

4 **A. The same ball.**

5 **Q.** What did Exponent do in its difference in
 6 difference analysis to account for time?

7 **A. Nothing.**

8 **Q.** How do you know?

9 **A. Absolutely nothing. If you look at their**
 10 **difference in difference equation in their appendix**
 11 **and you look at Table A3, where they report their**
 12 **results, they have explanatory variables for their**
 13 **difference in difference analysis and time is not an**
 14 **explanatory variable.**

15 **You can read the Exponent report forwards,**
 16 **backwards, upside down. You see time referred to**
 17 **again and again and again and again. However, you**
 18 **have to look at what they actually did, the**
 19 **statistical analysis that they actually did. They**
 20 **left time out of the analysis that they said was the**
 21 **most important.**

22 **Q.** Were you and your team able to account for
 23 time in trying to replicate their difference in
 24 differences work?

25 **A. I took their scientific guidance and said,**

1 **let's adjust for time.**

2 **Q.** Let's go to the next slide and let's just
3 focus here. We are going to go through these three
4 cases. Let's focus on case 1 and what you and your
5 team tried to do.

6 **A. Case 1 is what I would call the minimum bump,**
7 **the minimum adjustment for time, assuming that the**
8 **Colts' balls were measured immediately after the**
9 **Patriots' balls, no moisture effect.**

10 **Q.** Let's go to the next slide. What's happening
11 here? This is your slide. What are you showing in
12 your case 1?

13 **A. Well, it's my slide, but it's Exponent's**
14 **transition graph. This is -- the top part of that**
15 **is right off of Exponent figure 22. And if it's**
16 **okay, let me just explain what's happening here.**
17 **This is the average psi of the Colts' balls**
18 **(indicating), okay.**

19 **And under this assumption about when they**
20 **were measured, this occurs right at this point in**
21 **time. So this is a given. And none of these**
22 **analyses are going to change the observed average**
23 **measurements for the Colts' balls. Those are the**
24 **starting values. If we drop a line down here, this**
25 **is when the Patriots' balls were measured.**

1 **So I'm going through basically an adjustment**
2 **that says if the Patriots' balls are measured here,**
3 **what if we said and adjusted for time and, in**
4 **effect, moved that measurement in this direction**
5 **just three-and-a-half minutes?**

6 **And we use Exponent's transition analysis to**
7 **tell us how much of an adjustment that would have**
8 **minute by minute on the height of this. And the**
9 **difference in the height of this and this looks to**
10 **be about this amount right here (indicating).**
11 **That's the adjustment in time. That's the**
12 **difference in psi.**

13 **Q.** Let's go to your next slide to see the impact
14 on statistical significance.

15 **A. Well, again, just for reference, this is**
16 **Exponent's analysis, except that there is a**
17 **difference in difference that couldn't be explained**
18 **of about .7. I am going to do rounding here.**

19 **And it's statistically significant. If we do**
20 **this minimum bump, that difference in psi that's,**
21 **quote, "unexplained" goes from .7 to .4 psi. And**
22 **critically, the statistical significance is now**
23 **eliminated. We now go from under .05 to above .05.**

24 **Q.** What is the importance of that finding?

25 **A. This is, well, Exponent adopted statistical**

1 **significance for a reason. We have a very small**
2 **sample. We have measurement error.**

3 **We have other factors. You adopt a standard**
4 **of statistical significance for a reason. And the**
5 **importance now is this is not a result on which you**
6 **go from statistical significance to conclusions.**
7 **You don't -- you stop there.**

8 **Q.** You did it. You did a second case. What
9 adjustment, what were you trying to account for in
10 Case Number 2?

11 **A. Well, Case Number 2, here's the sequence of**
12 **events that was basically -- we will call it**
13 **halftime sequence number 1. And the Patriots' balls**
14 **are measured first. The Colts' balls are measured**
15 **second. And then the Patriots' balls were**
16 **reinflated. This is in the Wells report.**

17 **What's acknowledged here, though, is there**
18 **remains uncertainty about the order of the last two**
19 **events, not uncertainty about the Patriots being**
20 **first, but uncertainty about these two. So what if**
21 **you just evaluate that uncertainty and flip these?**
22 **So it's Patriots' measurement, Patriots'**
23 **re-inflation, and then Colts' measurement.**

24 **Q.** Let's go to the next slide.

25 **A. Basically it's the same analysis. Instead of**

1 **a three-and-a-half-minute adjustment for time, it's**
2 **now a seven-and-a-half-minute adjustment for time.**

3 **Q.** And let's go to the next slide and see what
4 happens.

5 COMMISSIONER GOODELL: Just so I'm clear, you
6 are saying it would take four minutes for eleven
7 balls to be properly inflated? That's your analysis
8 or whose analysis is that?

9 THE WITNESS: That's in the Exponent report
10 and the Wells report. They have a range, time
11 ranges for those sequences of events.

12 **Q.** And what happens to the p-value and more
13 generally, if you could speak to the significance of
14 the p-value in statistical terms once you make an
15 adjustment?

16 **A. Well, again, I think it's good to just always**
17 **refer back to what was the so-called unexplained**
18 **difference in drops. According to Exponent, it was**
19 **about .7 psi.**

20 **Now, if you consider this alternative**
21 **sequence with a time difference of seven and a half**
22 **minutes, on average, the difference in psi now goes**
23 **to under .3 and the p-value goes to .2. This is a**
24 **kind of range of a p-value where you say, I don't**
25 **know whether there was anything at all.**

1 COMMISSIONER GOODELL: What do you mean by
2 that?

3 THE WITNESS: I mean by that when you set up
4 a test like that, you are trying to accept or reject
5 hypotheses. And when you see something like this,
6 you say, I don't know what's going on. I don't know
7 if there's any significant difference in difference
8 from which to draw conclusions.

9 **Q.** Let's talk about your third case and what you
10 tried to test for here.

11 **A. Well, the third case, again, goes back to the**
12 **idea of a control. And the concern that motivates**
13 **this is that Exponent was testing balls at two**
14 **different points in time.**

15 **And the Patriots' balls not only would be**
16 **colder, they could be wetter compared to the Colts'**
17 **balls, which would be warmer and dryer. That's not**
18 **apples to apples. So you want to make an adjustment**
19 **for time that affects both warmth and moisture to**
20 **see, not to say you know exactly how wet they were,**
21 **because I don't know. But what if there is a**
22 **moisture effect as well as a warmth effect?**

23 **Q.** Let me ask you a question. You said, "What
24 if there's a moisture effect?" Was this an issue
25 that you discussed with Mr. Duffner?

1 COMMISSIONER GOODELL: Could I just hear what
2 his plausible assumptions are. What are your
3 plausible assumptions?

4 THE WITNESS: Plausible assumptions is that,
5 in addition to considering the minimum time
6 adjustment, if you consider the alternative time
7 sequence, and I'm not here to say it's one or the
8 other, but you had two time sequences at halftime
9 that I believe should be considered. One is
10 Patriots, Colts measurement --

11 COMMISSIONER GOODELL: Your 1, 2, 3, right?

12 THE WITNESS: Yes.

13 COMMISSIONER GOODELL: That's your plausible
14 assumptions?

15 THE WITNESS: Yeah, just saying that there
16 was a greater --

17 COMMISSIONER GOODELL: What about dry time?

18 THE WITNESS: Yes, and what if there is a
19 moisture effect.

20 COMMISSIONER GOODELL: But that's a what-if,
21 right?

22 THE WITNESS: Yes, it is a what-if, yes, sir.

23 **Q.** What did Exponent do in its, what you call
24 statistical variability analysis? And if you have
25 an understanding as to why they did this analysis?

1 **A. Yes.**

2 **Q.** What did he say?

3 **A. He said it's definitely the kind of thing**
4 **that should be explored. Balls come in wet. They**
5 **get dry over this time period. So this keeps the**
6 **seven and a half minutes the same, but also takes**
7 **the Colts' balls back, it says, well, what if there**
8 **is a moisture effect.**

9 **Q.** And what happens to the p-value when you do
10 this analysis?

11 **A. Well, the p-value goes even higher. And with**
12 **respect to this unexplained difference in**
13 **difference, .7 now goes to .07. 90 percent of the**
14 **difference in difference is now explained.**

15 **Q.** What's your takeaway from your first finding,
16 your analysis of their difference in differences
17 work?

18 **A. Timing needs to be included in the analysis.**
19 **When you include timing, the results shift from**
20 **being statistically significant to insignificant.**
21 **The unexplained difference in difference falls and**
22 **under plausible assumptions goes to a de minimus**
23 **level.**

24 **Q.** Let's talk about your second finding and
25 another aspect --

1 **A. Well, this is a relatively brief commentary.**
2 **My belief is, and this is a bit of a speculation, is**
3 **that they wanted to look at the variants, the**
4 **dispersion in the measurements between the Colts'**
5 **balls at halftime and the Patriots' balls at**
6 **halftime to see if there was a contrast. And if**
7 **there was a contrast so that the Patriots' balls had**
8 **more dispersion, more variance in their**
9 **measurements, that would lend support to the idea**
10 **that they didn't have a common starting value. Why**
11 **wouldn't they have a common starting value? Hasty**
12 **deflation.**

13 **Q.** Let's go to the next slide. And what did
14 Exponent conclude as a statistical matter about
15 variability?

16 **A. No statistical -- no statistically**
17 **significant difference.**

18 **Q.** Did they stop there?

19 **A. No. They continued, which is striking,**
20 **because, whereas in the difference in difference**
21 **analysis, they adopted the standard five percent as**
22 **the benchmark, here, they said, no, we will just**
23 **continue on and reach conclusions. And it's right**
24 **here at the bottom.**

25 **So without having found anything that's**

1 **statistically significant, nevertheless they have a**
 2 **statement that begins in their report, "therefore."**

3 **Q.** And in your experience, as a statistical
 4 matter, is it a sound practice to draw conclusions
 5 from an analysis which doesn't reach statistical
 6 significance?

7 **A. No.**

8 **Q.** Even putting aside the fact that Exponent's
 9 results were not statistically significant, are you
 10 aware of any explanation for greater variability
 11 among Patriots' balls compared to Colts' balls?

12 **A. I'm not here to offer scientific insights. I**
 13 **don't know if the first-half conditions could lead**
 14 **to more variance. I'm just going to focus on the**
 15 **scientific guidance provided by Exponent. And**
 16 **recognizing that the Colts' balls were measured some**
 17 **time in here (indicating).**

18 **They are measured at a relatively flat part**
 19 **of the curve (indicating). And if you sample from a**
 20 **relatively flat part of the curve, you get less**
 21 **variance. And this was not considered by Exponent**
 22 **when they made this comparison and reached the**
 23 **"therefore" conclusion.**

24 **Q.** Was this issue of the impact of time on
 25 variance something you discussed with Mr. Duffner?

1 **A. Yes. I asked him if the insight that we had**
 2 **developed on this was correct, and he said -- he**
 3 **said, definitely. I mean, we were basically**
 4 **finishing each other's sentences. He said -- I said**
 5 **the curve flattens and that's going to lead to less**
 6 **variance.**

7 **And he used a different term. He said "curve**
 8 **asymptotes," a more technical term, but he said the**
 9 **same thing.**

10 **Q.** Let's go to your finding number 3. What's
 11 the bottom-line conclusion here?

12 **A. Exponent did an analysis to establish what**
 13 **you might say is a scientific benchmark, a threshold**
 14 **to say should the Patriots' balls or are the**
 15 **Patriots' balls above this threshold?**

16 **And my finding is that if you consider as a**
 17 **plausible assumption that the logo gauge was used**
 18 **pre-game by Mr. Walt Anderson, I'm not saying it's**
 19 **true, I'm just saying if you entertain that**
 20 **assumption, given the uncertainty, and you execute**
 21 **Exponent's analysis correctly, then eight out of the**
 22 **eleven Patriots' balls are above this relevant**
 23 **scientific threshold.**

24 **Q.** Let's go to the next slide and the beginning
 25 of Exponent's analysis. Their comparison of the

1 Patriots' balls halftime measurements to the Ideal
 2 Gas Law Formula. If you could describe, what did
 3 Exponent do?

4 **A. Well, they applied the Ideal Gas Formula.**
 5 **They have parameters here of a starting temperature**
 6 **between 67 and 71 when that initial psi of 12.5 was**
 7 **established and then a final temperature of 48.**

8 **And then they are saying, well, what if they**
 9 **are brought into the locker room right then, what**
 10 **should they measure? And the key number here is**
 11 **that they identified this as their scientific**
 12 **threshold (indicating), and they say the balls have**
 13 **not been deflated. The measurement should be above**
 14 **11.32.**

15 **Q.** Okay. Let's go to the next slide. And if
 16 you could explain, how did Exponent do this? How
 17 did they go about this comparison?

18 **A. Well, it gets into some additional math. In**
 19 **addition to the Ideal Gas Law math, they also**
 20 **recognize that the two gauges have this tendency to**
 21 **read differently. The logo gauge reads about .3 to**
 22 **.4 higher than the non-logo gauge.**

23 **So what they did was carefully, according to**
 24 **their report, establish how you convert readings**
 25 **into a so-called master gauge well-calibrated,**

1 **accurate master gauge for both the logo readings and**
 2 **the non-logo readings.**

3 **Q.** And how do they do this conversion?

4 **A. You mean in terms of the actual test?**

5 **Q.** Yes, how they execute.

6 **A. Well, they basically say, well, if you say**
 7 **it's the master -- excuse me, if it's the logo gauge**
 8 **used, well then, you should convert the readings,**
 9 **the halftime measurements and adjust them to the**
 10 **master gauge readings.**

11 **Q.** And that's a mathematical formula?

12 **A. It's just a crunching of the -- through the**
 13 **master gauge adjustment.**

14 **Q.** And when Exponent did these conversions, what
 15 conclusion did they reach about how the Patriots'
 16 balls compared to that range or the bottom end of
 17 the range you talked about in the prior slide?

18 **A. They found that eight of the Patriots' balls**
 19 **were below this critical scientific threshold.**

20 **Q.** Did you find any errors in Exponent's
 21 conversion work?

22 **A. Yeah, yes. They made a very basic mistake.**
 23 **They have the master gauge conversion adjustment,**
 24 **and they converted the halftime readings for the**
 25 **master gauge conversion, but they did not convert**

1 **the starting values for the master gauge conversion.**
2 **Q.** Does that make a difference here? Does that
3 make a difference in the outcome?
4 **A.** **It does under one of two assumptions. And**
5 **there are only two assumptions to make. Pre-game,**
6 **it was either Mr. Anderson used the logo gauge, his**
7 **recollection, or he used the non-logo gauge.**
8 **It turns out that the master gauge conversion**
9 **is not a very big adjustment at all for the non-logo**
10 **gauge. So this error doesn't play out to have any**
11 **significant effect on the Exponent findings if the**
12 **non-logo gauge was used.**
13 **However, because that logo gauge measures a**
14 **lot higher, you have to make the adjustments**
15 **consistently, both to the starting values and the**
16 **halftime values.**
17 **Q.** So let's put a pin in the conversion error
18 and take a look at and describe what we know about
19 the possibility that the logo gauge was used for the
20 pre-game measurements.
21 **A.** **Well, without reading this, I mean, as a**
22 **researcher, here, the key point for me is that both**
23 **assumptions should be evaluated in terms of whether**
24 **Mr. Anderson used the logo gauge or the non-logo**
25 **gauge.**

1 **Q.** Was there evidence before Exponent that the
2 logo gauge being used for a pre-game measurement was
3 a plausible possibility here?
4 **A.** **Yes.**
5 **Q.** Let's go to the next slide. And were you
6 able to correct for that inconsistency that you
7 described in Exponent's master gauge conversion?
8 **A.** **Yes. Now, the effective starting value is**
9 **not 12.5, it's 12.17.**
10 **Q.** How do you get the 12.17?
11 **A.** **You apply the master gauge conversion**
12 **consistently to both halftime measurements, as well**
13 **as the starting value.**
14 **Q.** Okay. And let's go to the next slide. And
15 what is the impact of making that correction on the
16 results?
17 **A.** **Now eight of the Patriots' balls are above**
18 **the critical threshold predicted by Exponent, three**
19 **are below.**
20 **Q.** We've talked about uncertainty in the gauges,
21 uncertainty in the sequence of events at halftime,
22 among other things. In statistical work, what is
23 the statistician to do when faced with uncertainties
24 in the data?
25 **A.** **Well, in this case, there are only two**

1 **options: There is the logo gauge and the non-logo**
2 **gauge. And my view is you should entertain both**
3 **options. You should explore what happens to your**
4 **findings, assuming that Mr. Anderson used one and**
5 **then the other.**
6 **Q.** Do you see throughout Exponent's report, do
7 you see that in all cases, they are testing for all
8 possibilities?
9 **A.** **No. I see instead rather than saying**
10 **neutrally, let's look at assumptions and see if our**
11 **results are consistent, as they did here, they**
12 **basically argued against the likelihood that the**
13 **logo gauge was used.**
14 **Q.** By the way, the conclusion that you reached
15 that eight out of the eleven balls were actually
16 above the bottom end of the Ideal Gas Law formula
17 prediction, are you the only person who's come to
18 that conclusion?
19 **A.** **No. There are multiple people who have come**
20 **to that conclusion. The AEI report came to that**
21 **conclusion. There's a Nobel Prize winner who has**
22 **come to that conclusion. A Ph.D. in physics has**
23 **come to that conclusion. I think there's a math**
24 **teacher in Maine who has come to that conclusion.**
25 **Q.** All right. Dean Snyder, a few final

1 questions. Did you make any conclusions about the
2 way the data was collected the day of the AFC
3 Championship Game?
4 **A.** **I think it's one of the most intriguing**
5 **things here is that the officials, I think they had,**
6 **actually, very good intuition about what to try to**
7 **do. They didn't just measure the Patriots' balls.**
8 **They measured the Colts' balls. They had the idea**
9 **of a control. They had the idea of measuring both**
10 **sets of balls with two gauges.**
11 **But -- but their intuition only carried them**
12 **so far. There were so many things that they didn't**
13 **have in mind. Now everybody is talking about the**
14 **Ideal Gas Law. I don't think they had the Ideal Gas**
15 **Law in mind when they brought the balls into the**
16 **locker room and measured them at different times.**
17 **They didn't record the timing of those**
18 **measurements. They didn't record the temperatures.**
19 **They didn't make sure which gauge was being used.**
20 **They didn't retain -- find all the gauges.**
21 COMMISSIONER GOODELL: They didn't what?
22 THE WITNESS: They didn't find all the gauges
23 for the pre-game and the -- my reading of the report
24 is that there are gauges that were set by the
25 Patriots and the Colts in the process described

1 earlier that aren't available.
 2 **A. And the moisture point that you raised, I**
 3 **don't think anybody tracked what balls were wet, how**
 4 **many of them were wet, whether they were in bags.**
 5 **And they didn't track what was happening during the**
 6 **first half.**

7 **So I would give the officials credit for**
 8 **developing a protocol, but the bottom line is that**
 9 **it's an impromptu protocol that leaves a lot of**
 10 **factors out and not controlled for.**

11 **Q.** Are there steps that could be taken going
 12 forward to ensure the reliability of measurements
 13 taken on game-day if people want to evaluate the
 14 measurements to draw conclusions about them?

15 **A. Well, I'm not here to offer views about**
 16 **protocols, but I'm sure that protocols could be**
 17 **developed along those lines if the League decided**
 18 **that was important.**

19 **Q.** Dean Snyder, did you reach any conclusions
 20 about the number of assumptions in Exponent's
 21 analysis?

22 **A. A lot of assumptions along the way, just**
 23 **saying we are going to switch the data, we are going**
 24 **to switch Colts' ball number 3 -- I mean, the Colts'**
 25 **data and line them up the way they did, sequencing.**

1 **It's a very large number of assumptions relative to**
 2 **actual data observations.**

3 **Q.** Did Exponent consider all of the data
 4 available to it?

5 **A. No, they did not.**

6 **Q.** Would you be more specific.

7 **A. Let me give two specifics. The 12th ball,**
 8 **the ball intercepted by D'Qwell Jackson during the**
 9 **first half, it was measured by, according to the**
 10 **report, someone on the Colts' sideline, and then it**
 11 **was measured by the NFL Official, Mr. Daniel or**
 12 **Daniels, I believe.**

13 **And he, interestingly, he measured that ball**
 14 **three times with the same gauge and wrote the**
 15 **results on the ball.**

16 **Q.** Do you remember what the results were?

17 **A. Well, I think the results -- if you included**
 18 **it in the analysis, it would be favorable to the**
 19 **view that there was not deflation, first of all.**
 20 **But the other thing that I found particularly**
 21 **important was, to my knowledge, this was the only**
 22 **time during the game that officials used the same**
 23 **gauge and recorded three measurements.**

24 **Why is that important? Well, here, you get a**
 25 **sense of potential measurement error. People who**

1 **are not trained to take these gauges, put them in**
 2 **the footballs and record temperature -- psi. So**
 3 **what do you see?**

4 **You see three measurements on the 12th ball**
 5 **and they differ by .4 psi; .4 psi is huge. So the**
 6 **measurement error that we are dealing with in this**
 7 **environment is the combination of that and the**
 8 **protocol. I mean, it just, it really was striking**
 9 **to me. And Exponent said we are not going to pay**
 10 **attention to the 12th ball.**

11 **COMMISSIONER GOODELL:** Who is Mr. Daniels,
 12 James Daniel? Not a game official?

13 **MR. REISNER:** No.

14 **Q.** Other data?

15 **A. I didn't mean "official" in the sense of**
 16 **officiating.**

17 **Q.** You had said that there was another set of
 18 data not considered by Exponent. What was that?

19 **A. The other data, and this goes back to the**
 20 **officials having some sense of the protocol, they**
 21 **measured post-game. They measured four Colts'**
 22 **balls. They measured four Patriots' balls.**

23 **When I saw that, I said to myself, wow, now**
 24 **you've got more control data. There's no**
 25 **possibility that between halftime and the end of the**

1 **game you would have tampering with either sets of**
 2 **balls.**

3 **So now we have, in addition to the four**
 4 **Colts' balls at halftime, which I described**
 5 **unscientifically as a puny control group, now you**
 6 **have the ability to triple that with the end of the**
 7 **game data; excuse me; the end of the game data. But**
 8 **Exponent said we're not going to look at those,**
 9 **either.**

10 **Q.** Do you remember anything about the
 11 measurements of the Patriots' balls post-game
 12 relative to the measurements of the protocols --
 13 sorry -- measurements of the Patriots' balls
 14 post-game compared to their reinflation level at
 15 halftime?

16 **A. Yes. There was a statement that they were**
 17 **inflated at halftime to, as I recall, 13. The**
 18 **post-game measurements were above 13. Again --**
 19 **well, I shouldn't say "again." It's a finding, it's**
 20 **a result that just underscores it's so difficult to**
 21 **understand what's going on.**

22 **Exponent made a lot of assumptions to**
 23 **navigate through the halftime data. I don't know**
 24 **what assumptions you would have to make to navigate**
 25 **through the post-game data.**

1 **Q.** Dean Snyder, last question. What is your
2 bottom-line takeaway from the work of the -- the
3 statistical work of Exponent?

4 **A. It's just not -- it's partly the setting,**
5 **it's partly the impromptu protocol, but it's also**
6 **the work that they have done statistically. The**
7 **combination is it's not something that leads to**
8 **reliable conclusions.**

9 **And, certainly, it's certainly not the kind**
10 **of scientific work that I would be comfortable with**
11 **reaching judgments about people. I'm in a very**
12 **different situation from the Commissioner, but these**
13 **are -- these are not reliable findings.**

14 MR. GREENSPAN: Thank you.

15 MR. KESSLER: Should we take a little break
16 before we do cross?

17 MR. REISNER: Take five minutes, maybe?

18 COMMISSIONER GOODELL: Sure.

19 (Recess taken 2:17 p.m. to 2:28 p.m.)

20 CROSS-EXAMINATION BY

21 MR. REISNER:

22 **Q.** Good afternoon, Dean Snyder.

23 Dean Snyder, do you have a degree in
24 statistics?

25 **A. No.**

1 **Q.** Are you a member of the American Statistical
2 Association?

3 **A. No.**

4 **Q.** To your knowledge, is any member of your team
5 a member of the American Statistical Association?

6 **A. I don't know one way or the other.**

7 **Q.** As far as you know, no member of your team is
8 a member of the American Statistical Association,
9 correct?

10 **A. Correct.**

11 **Q.** Now, you were assisted in your work here by
12 members of the Analysis Group, correct?

13 **A. Yes, and as well as by Professor Moore.**

14 **Q.** And the Analysis Group, that's a consulting
15 firm, right?

16 **A. Yes.**

17 **Q.** Very much like Exponent is a consulting firm,
18 correct?

19 **A. Well, they're different, but they are both**
20 **consulting firms.**

21 **Q.** And Analysis Group frequently works with
22 lawyers involved in litigation, correct?

23 **A. Yes.**

24 **Q.** And Exponent frequently works with lawyers
25 involved in litigation, correct?

1 **A. I believe so.**

2 **Q.** And how many times have you worked with the
3 Analysis Group in the past?

4 **A. I've been working with them for about seven**
5 **years, and depends on how you count cases.**
6 **Sometimes cases have different aspect of them. So**
7 **you take, for example, the litigation involving LCD**
8 **panels.**

9 **That's one litigation in some people's minds,**
10 **but it involves a lot of cases in other people's**
11 **minds. So it's a little hard to count, but I have**
12 **worked with them for the past seven years.**

13 **Q.** Is it fair to say you have worked with them
14 on at least a dozen cases over those seven years?

15 **A. That's probably -- I wouldn't -- I haven't**
16 **counted, but I think that -- I wouldn't disagree**
17 **with that.**

18 **Q.** And you receive payment in connection with
19 the work that you do at the Analysis Group, correct?

20 **A. Yes.**

21 **Q.** That payment is separate and apart from the
22 compensation you receive in connection with your
23 duties at Yale, correct?

24 **A. Yes.**

25 **Q.** Now, before your testimony today, and in

1 connection with the work that you did, did you read
2 the entire Exponent report in connection with your
3 analysis?

4 **A. Yes.**

5 **Q.** And so are you aware that, in addition to the
6 analysis of statistical significance and the
7 difference between the pressure drops in the Colts'
8 and the Patriots' balls, Exponent separately
9 conducted a series of other tests and experiments,
10 correct?

11 **A. Yes.**

12 **Q.** And among those tests were transient
13 experiments, yes?

14 **A. Yes.**

15 **Q.** And among those tests were game-day
16 simulations, correct?

17 **A. Yes.**

18 **Q.** I want to focus first on your Finding 1. And
19 I'm referring to what's in evidence as Exhibit 191.
20 It's the low-tech version of your deck that you just
21 presented.

22 And Finding 1 is, "Exponent's statistical
23 analysis of the difference in average pressure drops
24 is wrong because it ignores timing," correct?

25 **A. Correct.**

1 **Q.** And that criticism focuses solely on the
2 statistical analysis performed, right?

3 **A. What they reported, as I said, in Table A3,**
4 **their statistical analysis of difference in**
5 **difference.**

6 **Q.** This criticism didn't go to the transient
7 tests that they performed, right?

8 **A. I'm not sure what you are asking me. The**
9 **transient test as reflected in Figure 1, those are**
10 **the transient curves that show timing, something**
11 **important.**

12 **Q.** But your criticism is directed to their
13 analysis of statistical significance, correct?

14 **A. No, it's their model. Their model did not**
15 **include timing. When you go to the Table A3 and you**
16 **look at the variables they included in their model,**
17 **they left timing out.**

18 **Q.** And when you refer to "their model," you are
19 referring to the model used in connection with their
20 statistical significance analysis, right?

21 **A. I don't understand your question. The model**
22 **did not include timing.**

23 MR. REISNER: Can we hand the witness a copy
24 of the Exponent report.

25 MS. GOLD: It's Tab 1 (handing).

1 **Q.** So you understand that the Exponent report
2 consisted of at least three components: A
3 statistical significance analysis, a transient
4 analysis and game-day simulations?

5 **A. I don't -- I don't understand your first**
6 **characterization. They did an analysis of the**
7 **difference in difference. They tried to explain it**
8 **and they didn't include timing.**

9 **That's not the first -- that's not how I**
10 **would characterize the first component of their**
11 **work. That's what they said was their most**
12 **significant work. I think --**

13 **Q.** Show me where in the report it says that's
14 their most significant work.

15 **A. I think it's in my slides.**

16 **Q.** I didn't ask you about your slides. Where in
17 their report does it say it's their most significant
18 work?

19 **A. It's the quote on my slide that identifies**
20 **the difference in average pressure drops, Exponent**
21 **Scenario 2.**

22 **It says, "What is most significant about the**
23 **halftime measurements is that the magnitude of the**
24 **reduction in average pressure was greater for the**
25 **Patriots football."**

1 **Q.** So your testimony is that that quote says
2 that's the most important part of their analysis?

3 **A. Well, I think most people would agree that**
4 **that is the most important. I mean, you heard**
5 **Mr. Nash's questions and opening. And he focused on**
6 **the difference in difference. The difference in**
7 **difference is the key to the case.**

8 **Q.** Is it a fairer way to describe the Exponent
9 work as that they looked at the statistical
10 significance analysis as the starting point to see
11 whether there was more to study? Isn't that a
12 fairer way to describe the Exponent report?

13 **A. I don't think so.**

14 **Q.** Let me direct your attention to the Exponent
15 report at page X, Roman X. And the second-to-last
16 paragraph reads, "It also appears that the Patriots'
17 game balls exhibit a greater average pressure drop
18 than did the Colts' game balls. This difference in
19 the magnitude of the decrease in average pressure
20 between the Patriots and the Colts footballs as
21 measured at halftime was determined to be
22 statistically significant, regardless of which
23 gauges were used pre-game and at halftime.
24 Therefore, the reasons for this difference were an
25 appropriate subject for further investigation."

1 Does that refresh your recollection that the
2 entire model of the Exponent study was to look at
3 statistical significance first to see whether there
4 was something to be studied further and then to
5 conduct experiments?

6 **A. If that's the logic, I just don't understand**
7 **it. I mean, you read the Exponent report. I gave**
8 **you the quotes. They say that timing, minute by**
9 **minute, matters. But when they decide whether they**
10 **have a significant result or not, and they base**
11 **conclusions on it, their own model, you just read**
12 **the first page of the appendix and they didn't**
13 **include it as an explanatory variable in their own**
14 **model.**

15 **Just look at Table A3. Look at their**
16 **equation. If you can show me -- if anybody can show**
17 **me that in their statistical model that they used**
18 **timing after stating and proving to the world that**
19 **timing matters, then I will change my view. But the**
20 **basic thing, and you don't have to be an expert in**
21 **anything other than statistics or econometrics to**
22 **know this.**

23 **Q.** You did not read the report as structured,
24 first, let's see whether there is a statistically
25 significant difference? Without --

1 **A. Without taking into account timing --**
 2 **Q.** Let me just finish my question.
 3 **A. Oh, I'm sorry.**
 4 **Q.** If, yes, then let's conduct experiments to
 5 see what is responsible for the difference. That's
 6 not the way you read the report?
 7 **A. Your characterization is incorrect.**
 8 **Q.** I'm just asking whether you read the report.
 9 **A. Excuse me. You are saying they first did a**
 10 **model to figure out if it was statistically**
 11 **significant. The model didn't include timing. It's**
 12 **not like they said we have a statistically**
 13 **significant result independent of a model. They**
 14 **included variables to explain it, right?**
 15 **That's what their model does and they left**
 16 **timing out. So they only got to, I think we agree**
 17 **they only got to a statistically significant result**
 18 **by excluding timing.**
 19 **Q.** We don't agree. And A3 and the model that
 20 you are referring to, that's included in Appendix A
 21 to their report, correct?
 22 **A. That's their model. That's the model they**
 23 **ran.**
 24 **Q.** But my question is: That's included as
 25 Appendix A to their report, correct?

1 **A. Yes, A3, yes, that identifies the model that**
 2 **they ran that generated their so-called**
 3 **statistically significant result.**
 4 **Q.** And that appendix is referenced in connection
 5 with their statistical significance analysis, right?
 6 **A. No. That's their model. That's their model**
 7 **to explain the difference in difference.**
 8 **Q.** And your criticism is that Exponent didn't
 9 take into account timing appropriately, right?
 10 **A. When they tested -- when they did their**
 11 **difference in difference analysis, you look at the**
 12 **equations. If I could refer you to the appendix.**
 13 **Q.** It would be better if you could answer my
 14 question.
 15 MR. GREENSPAN: And I would ask you to just
 16 let him answer the question.
 17 MR. LEVY: Knock it off.
 18 **A. When you say their analysis of statistical**
 19 **significance, that's an error. That's simply an**
 20 **error, okay? They do an analysis to explain the**
 21 **difference in difference and they don't include**
 22 **timing. And on that basis, they conclude that it is**
 23 **statistically significant and then they say that**
 24 **there's a finding that follows that. It's a finding**
 25 **that is flawed.**

1 **Q.** But they included timing in other aspects of
 2 their work, didn't they?
 3 **A. I'm sorry. Yes, they did side analyses**
 4 **throughout.**
 5 **Q.** What makes you call them "side analyses"?
 6 Where are they called side analyses in the report?
 7 **A. That's my characterization.**
 8 **Q.** Okay.
 9 **A. And I believe -- I believe -- it's a fair**
 10 **point. I believe that the core analysis here is the**
 11 **difference in difference analysis. I think any fair**
 12 **reading of their report indicates that the**
 13 **difference in difference analysis is the core and**
 14 **their model excluded timing.**
 15 **Q.** And you understand that they conducted
 16 transient experiments, right?
 17 **A. Transient experiments is what generated**
 18 **Figure 22, which tells you timing should be**
 19 **included.**
 20 **Q.** And the purpose of the transient experiments
 21 was to determine the impact of timing of the
 22 halftime measurements on air pressure levels,
 23 correct?
 24 **A. Yes.**
 25 **Q.** And from reading the Exponent report, you

1 understood that the main focus of the transient
 2 experiments was to determine whether the timing of
 3 the halftime measurements could explain the
 4 difference in the pressure drops observed between
 5 the Patriots' balls and the Colts' balls? That was
 6 your understanding from reading the report, right?
 7 **A. I couldn't tell what they were doing with**
 8 **that. And when you say "explain," there was**
 9 **language to the effect could they explain fully,**
 10 **under certain parameters.**
 11 **So I think, I think you would have to ask**
 12 **Exponent what they were trying to do and if they**
 13 **were trying to set up an experiment that used timing**
 14 **to explain everything.**
 15 **But it was different, I agree, from the**
 16 **difference in difference analysis that was featured**
 17 **in their report on which they claim they had**
 18 **statistically significant results.**
 19 **Q.** Okay. So let me ask you to turn to page 43
 20 of the Exponent report. And fourth paragraph down,
 21 second sentence, third sentence referring to the
 22 transient experiments, "Therefore, the main focus of
 23 the transient experiments was to determine if
 24 variation in measurement timing was sufficient to
 25 explain the variation in the observed differences

1 than the average pressure drops between the teams
 2 given the range of likely environmental factors
 3 present on game day and the realistic timing of
 4 measurements given the sequencing and duration of
 5 the various events known to have occurred at
 6 halftime."

7 So was it your understanding that the purpose
 8 of the transient experiments was to determine
 9 whether the timing of the halftime measurements
 10 could explain the difference in the pressure drops
 11 observed between the Patriots' balls and the Colts'
 12 balls?

13 **A. I think a fairer reading of this statement,**
 14 **which I think is revealing, is that they were trying**
 15 **to do these other analyses and determine whether**
 16 **these transient analyses were sufficient on their**
 17 **own to explain the difference in difference.**

18 **Q.** That's your interpretation or that's what it
 19 says in the report?

20 **A. Well, it says right here, "The main focus of**
 21 **the transient experiments was to determine if**
 22 **variation and measurement timing was sufficient to**
 23 **explain."**

24 **It doesn't say "partially explain" or whether**
 25 **it's a relevant variable. It doesn't say whether**

1 **timing should be included in the analysis. It**
 2 **doesn't say because it's not sufficient, we are**
 3 **going to exclude it.**

4 **It just says we are going to do this test to**
 5 **see if timing is sufficient to explain, and I think**
 6 **it's a fair reading --**

7 **Q.** Yes.

8 **A. -- everything.**

9 **Q.** And so you are not suggesting, Dean Snyder,
 10 that Exponent failed in its work to identify and
 11 consider the timing of the measurements as a factor
 12 to be considered? You are not suggesting that,
 13 right?

14 **A. In their core analysis, exactly.**

15 **Q.** You are calling it a core analysis, but in
 16 their statistical significance analysis, correct?

17 **A. That's not the right term. I'm sorry to --**
 18 **to -- to correct you on this. They had a difference**
 19 **in difference analysis on which they reached their**
 20 **core findings that there was this -- this didn't**
 21 **happen by chance.**

22 **Q.** Did they use their statistical significance
 23 analysis to reach conclusions as to the likelihood
 24 of tampering?

25 **A. Well, I think I have it in my slides.**

1 **Q.** Can you answer my question without looking at
 2 your slides?

3 **A. No, I can't, because I spent a lot of time**
 4 **trying to get this right. And it's very clear that**
 5 **their finding on statistical significance is what**
 6 **leads to their "therefore" statement. So you might**
 7 **as well just refer to the slides. I think you get**
 8 **the best -- the best guidance.**

9 **Q.** Well, I think, frankly, the best guidance
 10 comes from the Exponent report and not your slides
 11 as to what Exponent studied. And the question is --

12 **A. It's a quote from Exponent.**

13 **Q.** -- did Exponent rely on their statistical
 14 analysis of the data to reach conclusions as to the
 15 likelihood of tampering, or did they rely on other
 16 aspects of their experimental work, if you know?

17 **A. I will just read what Exponent stated based**
 18 **on their difference in difference analysis.**

19 **Q.** Do you have a page number for what you are
 20 reading?

21 **A. Yes, Exponent report, Table 8 on page 11.**
 22 **Quote, "In other words, in all cases studied, the**
 23 **additional pressure drop exhibited by the Patriots'**
 24 **footballs is unlikely to have occurred by chance."**

25 **Q.** "Unlikely to have occurred by chance,"

1 doesn't say anything there about likelihood of
 2 tampering or human intervention, does it?

3 **A. I will let -- I will let other people figure**
 4 **out what they were intending to state there.**

5 **Q.** I think what they were intending to state is
 6 what they stated, and it doesn't refer to likelihood
 7 of tampering, does it? Does it refer to likelihood
 8 of tampering?

9 **A. I don't have an answer to that one.**

10 **Q.** Are there other aspects of the Exponent
 11 report that do directly address likelihood of
 12 tampering based on experiments conducted and
 13 analyses of data generated based on those
 14 experiments?

15 **A. I don't know what you are asking me.**

16 **Q.** I'm asking you just what I asked you.

17 **A. It's just a general question.**

18 **Q.** It's really not a general question. I'm
 19 asking: Do you know based on your review of the
 20 Exponent report whether there are other portions in
 21 their report in which they do draw conclusions about
 22 likelihood or probability of tampering based on
 23 experimental results?

24 **A. I don't think.**

25 **Q.** You don't remember?

1 **A. I don't know what -- I don't know what -- I**
 2 **don't even understand the question. I view this as**
 3 **the standard approach when you find statistically**
 4 **significant results to draw conclusions. And I**
 5 **think this is exactly the conclusion that they were**
 6 **drawing.**

7 **And I think any reasonable reading of it**
 8 **speaks to the issue of whether this extra deflation**
 9 **was the result of chance or something else. You are**
 10 **telling me, well, it doesn't say "tampering." I**
 11 **understand that. But I will just let other people**
 12 **read this.**

13 **Q. But something else could be timing, right?**

14 **A. Does it say "timing"?**

15 **Q. It says, "It is unlikely to have occurred by**
 16 **chance and further study is warranted."**

17 **And timing was studied, right?**

18 **A. And why not include timing in the original**
 19 **model? They have a list of variables that they**
 20 **include in their original model, but they excluded**
 21 **timing. Isn't that the key thing here?**

22 **Why go to a side analysis and say timing is**
 23 **sufficient to explain everything? Put it in your**
 24 **original model. Come on. And, yes, I'm a member of**
 25 **the Econometrics Society in the past. Any graduate**

1 **student in statistics or econometrics would know**
 2 **this is wrong. This is a restriction. This is**
 3 **saying timing is unimportant despite reading the**
 4 **Exponent report. It's timing all over the place.**

5 **Q. Well, I would move to strike if this were in**
 6 **real court, but I won't move to strike.**

7 **But I'm sure Exponent will not describe their**
 8 **other work as a side analysis and would describe**
 9 **their work quite differently than you are describing**
 10 **it. And I think we will have the opportunity to**
 11 **hear from them.**

12 **Didn't even the statistical significance**
 13 **analysis used by Exponent incorporate something**
 14 **called an order effect to account for the timing of**
 15 **the ball measurements at halftime?**

16 **A. When you talk about the analysis on which**
 17 **they reached their conclusions, no. They did do a**
 18 **separate analysis to which they referred, I think,**
 19 **in the appendix in a particular footnote at the very**
 20 **end where, instead of evaluating timing, they took**
 21 **the order of the balls and they discussed unreported**
 22 **results.**

23 **Q. And what you referred to as their appendix at**
 24 **the very end, right now in your answer is what you**
 25 **previously described as the core of their work in**

1 Appendix A, right?

2 **A. Well, the core of their work in Appendix A**
 3 **explains how they -- the details of their model,**
 4 **which is discussed at length. In the appendix, they**
 5 **also refer to unreported results in a footnote. I**
 6 **think you are talking about a footnote where they**
 7 **discuss unreported results.**

8 **There is no equation. There is no table and**
 9 **it's not timing. It's order of football**
 10 **measurement. And I would be happy to find it. It**
 11 **actually is a very interesting statement on their**
 12 **part.**

13 **Q. It's at Page A3 of their appendix and it's at**
 14 **Footnote 49. And when you look at that footnote,**
 15 **isn't it a fact that, "Exponent explicitly took**
 16 **account of time effect in their statistical analysis**
 17 **by incorporating an order effect into their model to**
 18 **determine whether any portion of observed**
 19 **ball-to-ball variation and pressure was explained by**
 20 **the order of measurements"?**

21 **Isn't that right?**

22 **A. Here's the --**

23 **Q. Is that right? Is that what that footnote**
 24 **says?**

25 **A. You said "timing" in your question. That's**

1 **not timing. It's order of measurements.**

2 **Q. It says "timing." It says, "To account for**
 3 **any time effect in our statistical analysis, we**
 4 **incorporated an order effect into our statistical**
 5 **model to determine whether any portion of the**
 6 **observed ball-to-ball variation in pressure was**
 7 **explained by the order of measurements."**

8 **A. Are you just asking me is that what it**
 9 **states?**

10 **Q. Well, is that what it states?**

11 **A. It is. That's what they've stated.**

12 **Q. And that incorporated the concept of timing**
 13 **into their statistical model, didn't it?**

14 **A. No. Here's what this did.**

15 **Q. That's fine. I will just leave it right**
 16 **there.**

17 **A. I would like to explain. It's an important**
 18 **point. It's not timing. It's order of ball**
 19 **measurement. That's the so-called explanatory**
 20 **variable. And the variable that they are trying to**
 21 **explain, the so-called dependent variable, is not**
 22 **the difference in average pressure drop.**

23 **It's not the difference in difference**
 24 **analysis. It's ball-to-ball variation, which we**
 25 **know is subject to so much measurement error that**

1 **I'm not surprised it doesn't explain that.**

2 **Q.** But it takes time to measure ball 1 through
3 ball 15, correct?

4 **A.** **Are ball 1 and 15 all measured at the same**
5 **increments in time? That embodies an assumption.**

6 **Q.** My question is, did it take time to measure
7 ball 1 through ball 15?

8 **A.** **Yes.**

9 **Q.** Do you know, based on the report,
10 approximately how much time it took to measure from
11 ball 1 through ball 15?

12 **A.** **Well, there's uncertainty. That's what**
13 **the -- that's what the report says. We don't know.**

14 **Q.** And there are estimates in the report about
15 how long it took, correct?

16 **A.** **Under certain assumptions. And this, this**
17 **analysis does not play it out. They don't explain**
18 **whether they took those different assumptions into**
19 **account.**

20 **Q.** But you will agree, won't you, that it had to
21 take some time to gauge 15 balls going from
22 ball 1 --

23 **A.** **Yes.**

24 **Q.** -- to ball 15, correct?

25 **A.** **Yes.**

1 **Q.** So whatever time it took, you would expect it
2 to be reflected in the ball data, correct?

3 **A.** **Well, certainly time, it takes time to gauge**
4 **balls. But again, the dependent variable here has**
5 **nothing to do with a difference in difference**
6 **analysis. It has to do with the ball-to-ball**
7 **differences.**

8 **That's what -- I can read it again, but**
9 **you've already put it into the record. It's not --**
10 **it's not a test of -- it's not a check on their**
11 **difference in difference analysis.**

12 **Q.** And in their -- in their transient analysis,
13 Exponent expressly took account of the full period
14 of halftime and expected psi levels of the Colts'
15 balls and the Patriots' balls based on the testing
16 that they performed, didn't they?

17 **A.** **Yes.**

18 **Q.** Now I want to focus your attention on
19 Finding 3 in your deck. Finding 3 says, "If the
20 logo gauge was used to measure the Patriots' balls
21 before the game, then eight of the eleven were above
22 Exponent's expected outcome.

23 **Now, to reach this conclusion, your analysis**
24 **assumes that the actual or true pressure of the game**
25 **balls delivered to the referee by the Patriots was**

1 12.17 psi, right?

2 **A.** **This is just consistently applying the master**
3 **gauge correction to both the halftime measurements**
4 **of the game balls and to the starting value, which**
5 **does have the effect that you just described.**

6 **Q.** So your assumption is that, the assumption in
7 your analysis is when the balls were delivered by
8 the Patriots to the refs pre-game, that the psi
9 measurement of the balls was 12.17, correct?

10 **A.** **It's a little -- there are a few side issues.**
11 **I'm not going to quibble too much. It's basically**
12 **right. There were some adjustments by**
13 **Mr. Anderson --**

14 **Q.** **Yes.**

15 **A.** **-- to get the balls using one of the gauges**
16 **to what he thought was about, according to the**
17 **record, about 12.5. What this means is, if he used**
18 **the logo gauge, this is just sort of basic**
19 **subtraction, if he used the logo gauge to get those**
20 **Patriots' balls calibrated to 12.5, and that logo**
21 **gauge reads about .3, a little bit more than .3**
22 **above 12.5, then the effective starting value is**
23 **what you said.**

24 **Q.** 12.17, right?

25 **A.** **Correct.**

1 **Q.** So you understand that according to the
2 Patriots themselves, the psi level at which they
3 delivered game balls to the referee for the AFC
4 Championship Game was not 12.17, right?

5 **A.** **They used a gauge and we don't know what**
6 **gauge they used and we don't know if their gauge had**
7 **the same kind of differential that the logo gauge**
8 **had versus the non-logo gauge.**

9 **Q.** My question really went to your understanding
10 of the psi level that the Patriots said they
11 delivered the ball to the ref pre-game.

12 **And my question is, do you understand that**
13 **the Patriots say that the psi level that they set**
14 **the balls to before the game was 12.5 or 12.6? Is**
15 **that your understanding of the Patriots' position?**

16 **A.** **With their -- with whatever gauge they used,**
17 **that's their understanding, you are right.**

18 **Q.** So the answer to my question is yes, that's
19 your understanding?

20 **A.** **Yes, but we don't know what that gauge was.**
21 **We don't know if that was giving accurate measures**
22 **or not.**

23 **Q.** The Patriots didn't say that they delivered
24 the balls to the ref at 12.17, right?

25 **A.** **Correct. And we don't have -- correct.**

1 **Q.** And you know that the NFL playing rules
2 require that balls be between 12.5 and 13.5 psi,
3 correct?

4 **A. Correct.**

5 **Q.** So your analysis basically assumes that the
6 Patriots delivered game balls to the referee before
7 the game that were underinflated in violation of the
8 rules?

9 **A. No. It means that if they used a gauge that**
10 **was like the logo gauge, they would have delivered**
11 **balls that were 12.5 and they didn't know it.**

12 **Q.** How about if they used a gauge that was like
13 the dozens and dozens and dozens of gauges that
14 Exponent studied as part of its work in this case,
15 all of which read relatively close to the master
16 calibrated gauge?

17 What if they used one of those dozens and
18 dozens and dozens and dozens of gauges? Would the
19 reading have been 12.17 or would the reading have
20 been 12.5 or 12.6?

21 **A. Clearly if they used the new gauges bought by**
22 **Exponent through particular sources that were all**
23 **alike, that would be true. But we don't know what**
24 **Patriots' gauge was used and there is no basis in**
25 **the report.**

1 **And this is just part of the problem that you**
2 **get into when you go down these rabbit holes. You**
3 **don't have the Patriots' gauge. You don't know if**
4 **that was an older gauge. There's evidence to**
5 **indicate that older gauges read higher than new**
6 **gauges.**

7 **Exponent collected a bunch of new gauges and**
8 **said, oh, new gauges, fine. No surprise there. I'm**
9 **not -- I'm not quarreling with this. It's just the**
10 **major point here is there are just so many**
11 **uncertainties.**

12 **Q.** Again, I just can't resist to move to strike,
13 but I don't know whether that's applicable in this
14 proceeding or not.

15 Part of your analysis in your finding or
16 criticism 3 is an application of the Ideal Gas Law,
17 right?

18 **A. No. I think that's just math. They are just**
19 **doing math there.**

20 **Q.** But the math is plugging numbers into the
21 Ideal Gas Law formula, isn't it?

22 **A. I'm not quarreling with the math on the Ideal**
23 **Gas Law formula, I'm only quarreling with their**
24 **inconsistency in applying the master gauge**
25 **conversion.**

1 **Q.** In your conclusion that, "Eight out of eleven
2 were above Exponent's expected outcome," "expected
3 outcome" means based on an application of the Ideal
4 Gas Law, correct?

5 **A. And if they --**

6 **Q.** Can you answer that question "yes" or "no"?

7 **A. No, I can't, because there are two parts to**
8 **establishing the relevant scientific threshold given**
9 **Exponent's own methodology. One is to do the math**
10 **on the Ideal Gas Law correctly. The other is to do**
11 **the math on the conversion consistently. They**
12 **didn't do the latter. I'm just correcting the**
13 **latter.**

14 **Q.** Would you agree that the Ideal Gas Law is
15 not, in practice, going to yield a directly relevant
16 measure because the balls were not tested on the
17 field at 48 or 50 degrees, but tested subsequently
18 in the locker room at a warmer temperature?

19 **A. I think that's true. I don't think anybody,**
20 **prior to this whole issue, understood -- they**
21 **understood the Ideal Gas Law, but that's a sort of**
22 **abstract law. How that law actually applies to**
23 **footballs being brought in from the field, that's**
24 **all, you know, Exponent had to do the transient**
25 **analysis to understand how footballs would react**

1 **when they were brought in and warm up and dry.**

2 **Q.** Exactly, which is why the Ideal Gas Law
3 itself only has theoretical applicability to this
4 problem and not practical applicability, because the
5 balls were not measured at some frozen temperature
6 at the end of halftime outside, but had an
7 opportunity to warm to some degree, fair?

8 **A. I think that's a fair point.**

9 **Q.** In any event, you concede that if the
10 non-logo gauge was used pre-game, application of the
11 Ideal Gas Law cannot account entirely for the
12 pressure drops observed in the Patriots halftime
13 measurements, correct?

14 **A. You are talking about the analog to -- I just**
15 **want to be clear -- the analog to --**

16 **Q.** Your criticism doesn't apply to the use of
17 the non-logo gauges used pre-game, correct?

18 **A. That's correct. This is their structure.**
19 **The mistake on the inconsistent master gauge**
20 **conversion is only substantively important under the**
21 **assumption that the logo gauge was used, not under**
22 **the assumption that the non-logo gauge was used.**

23 **Q.** And just flipping back for a moment to your
24 criticism 1, what you call Case 1.

25 COMMISSIONER GOODSELL: Where?

1 MR. REISNER: This is at page 3437, Bates
 2 Number 3437 in this deck.
 3 **Q.** When you recalculate the statistical
 4 significance analysis by Exponent, you yield a
 5 p-value of .067, correct?
 6 **A. Yes.**
 7 **Q.** And is it fair to say that that p-value means
 8 that there's a 6.7 percent likelihood that chance
 9 explains the variation and a 92.3 percent chance or
 10 likelihood that chance does not explain the outcome?
 11 **A. Correct.**
 12 **Q.** Just a couple of questions about your finding
 13 Number 2, which looking at the front page of your
 14 deck says, "Exponent improperly draws conclusions
 15 based on the variability in halftime pressure
 16 measurements despite conceding that variability is
 17 statistically significant."
 18 The conclusion that you are challenging,
 19 Dr. Snyder, is the statement by Exponent at page 62
 20 of its report that, "Therefore, subject to the
 21 discovery of an as-yet unidentified and unexamined
 22 factor, the most plausible explanation for the
 23 variability in the Patriots halftime measurements is
 24 that the eleven Patriots' footballs measured by the
 25 officials at halftime did not all start the game at

1 variability, they were doing it based on the raw
 2 data, correct?
 3 **A. I don't even know what that means, "on the**
 4 **raw data."**
 5 **Q.** Based on the halftime measurements and only
 6 the halftime measurements.
 7 **A. I'm just lost. They compared the variance**
 8 **and they didn't find a statistically significant**
 9 **difference, even after they had flipped the Colts'**
 10 **ball number 3, which reduced the variance in the**
 11 **Colts' balls measurements.**
 12 **Q.** And when they reported their observations on
 13 variability later in the report on page 62, they
 14 weren't just relying on the raw halftime data; they
 15 were also relying on learning from the transient
 16 experiments that they performed, correct?
 17 **A. I'm not sure if I am following your question.**
 18 **I'm happy to look at page 62.**
 19 **Q.** Look at page 62 of the report. Page 62 last
 20 paragraph, first sentence, "The fluctuations in
 21 pressures" --
 22 **A. I'm sorry, sir, sorry to interrupt. I see.**
 23 **I was on the wrong page. If you could just pause a**
 24 **second; yes.**
 25 **Q.** Reading at the first sentence in the last

1 or near the same pressure," right?
 2 **A. Well, that's true.**
 3 **Q.** Is that the conclusion that you are
 4 challenging?
 5 **A. Well, it's two things. One, is they proceed**
 6 **with a conclusion without having found a**
 7 **statistically significant difference. And then,**
 8 **secondly, when they say, "As-yet unidentified and**
 9 **unexamined factor," they examined timing. It was**
 10 **right there in their own Figure 22. They just**
 11 **didn't bring it up.**
 12 **Q.** Well, but that's not really fair. When they
 13 determined absence of statistical significance as to
 14 variability, they were just looking at the raw data,
 15 right?
 16 **A. I don't know why that's not --**
 17 **Q.** Can you answer?
 18 **A. What I said was fair. It's exactly fair.**
 19 **They set up statistical significance as a standard.**
 20 **They used it in their difference and difference**
 21 **analysis and then they dropped it for this and they**
 22 **went on to make an inappropriate conclusion and they**
 23 **ignored timing.**
 24 **Q.** Okay. When they made their lack of
 25 statistical significance finding with respect to

1 paragraph on page 62, "The fluctuations in pressures
 2 between the pairs of Patriots' football measurements
 3 highlighted in Table 15 exceed those expected based
 4 on the transient curves."
 5 Does that refresh your recollection that in
 6 making their conclusions and stating their
 7 observations as to variability later in the report,
 8 they didn't rely simply on the raw halftime data,
 9 but also on the learning that they obtained based on
 10 their transient experiments?
 11 **A. I guess you would have to ask them exactly**
 12 **what their bases were and if they were willing to**
 13 **say we didn't find this statistically significant**
 14 **difference, but then for some other work that they**
 15 **did, they were willing to reach this conclusion.**
 16 **Q.** Okay. We'll do that.
 17 MR. REISNER: Nothing further at this time.
 18 MR. GREENSPAN: Nothing from me.
 19 COMMISSIONER GOODELL: Thank you. Appreciate
 20 your time.
 21 THE WITNESS: Thanks, Mr. Commissioner.
 22 MR. KESSLER: Let me just do some
 23 housekeeping. Mr. Levy indicated to me that you
 24 didn't have copies of the Declaration of Robert
 25 Kraft and the two declarations of Mr. Maryman, so

1 let me just identify that.

2 The Kraft Declaration is NFLPA 168 and the
3 Maryman Declaration is NFLPA 4 and NFLPA 6. And the
4 next witness we would call is Mr. Vincent, if you
5 want to proceed right to that.

6 COMMISSIONER GOODELL: Yes.

7 MR. KESSLER: I'm just going to note for the
8 record, we have been keeping count. We have the NFL
9 at one hour and 45 minutes out of their two-hours'
10 allotment that you gave to them.

11 And what do we have for ours, Heather? We
12 will tell you ours in a second to see if we are
13 correct.

14 MR. LEVY: I think it's two hours and
15 42 minutes, but I am keeping track. But as noted in
16 my correspondence, the Commissioner is inclined to
17 grant at least another hour on the end and is
18 willing to show flexibility at the end of that hour.
19 So we should continue to proceed ahead here.

20 MR. KESSLER: I just want to be clear about
21 this because I have been planning my examination
22 based on that I would have to make some good cause
23 showing as you indicated for something else, and
24 there are additional witnesses that I would call.
25 If I'm going to just automatically be granted, you

DIRECT/VINCENT/KESSLER Page 227

1 know, an hour, at least, then I have got more people
2 to call about this. I'd just like to be advised
3 about what my rules are. That's, I think that's
4 fair.

5 MR. LEVY: You have got at least another
6 hour, and we will be flexible beyond that. If you
7 have got other witnesses to call, have them
8 available.

9 MR. KESSLER: Okay. Well, I've already asked
10 that I would like two additional witnesses I
11 mentioned, and so I assume they are here, so I will
12 call them if I now have the time to do it. Let me
13 see how it proceeds with Mr. Vincent and Mr. Wells
14 and I will see how much time I have used up.

15 MR. LEVY: Jeffrey, who are the two
16 additional witnesses?

17 MR. KESSLER: Dr. Marlow and Mr. Gardi, both
18 of whom I believe are here.

19 COMMISSIONER GOODELL: Go ahead, please.

20 **TROY VINCENT**, called as a witness, having
21 been first duly sworn by a Notary Public of the
22 State of New York, was examined and testified as
23 follows:

24 DIRECT EXAMINATION BY

25 MR. KESSLER:

1 **Q.** Mr. Vincent, would you please state your name
2 for the record.

3 **A. Troy Vincent.**

4 **Q.** And, Mr. Vincent, what is your current
5 occupation?

6 **A. I am the Executive Vice President of Football
7 Operations here at the National Football League.**

8 **Q.** Could you please tell us what are your
9 responsibilities as the Vice President For Football
10 Operations?

11 **A. My responsibility and our department is
12 charged with preserving the integrity of the game,
13 overseeing all of football operations, day of the
14 game, uniform violations.**

15 **Q.** So that would include basically everything
16 that happens on game-day; is that fair?

17 **A. It's fair.**

18 **Q.** And that would include the referees' testing
19 of footballs? That would be something within your
20 personal jurisdiction; isn't that correct?

21 **A. Yes, sir.**

22 **Q.** And would you be the most senior person,
23 short of the Commissioner, who is responsible for
24 that particular set of activities?

25 **A. Dean Blandino would be the other.**

DIRECT/VINCENT/KESSLER Page 229

1 **Q.** I'm sorry; who was that?

2 **A. Dean Blandino, head of officiating.**

3 **Q.** Does he report to you?

4 **A. Yes, sir.**

5 **Q.** Okay. So again, I'm just trying to think,
6 there is no one more senior to you responsible for
7 how the officials would test game balls than
8 possibly the Commissioner; isn't that correct?

9 **A. That's correct.**

10 **Q.** Okay. So let me ask you first, Mr. Vincent,
11 how did you first learn that there was any issue or
12 allegation about the footballs that the Patriots
13 were using in the AFC Championship Game?

14 **A. It was first brought to my knowledge
15 approximately six or seven minutes remaining in the
16 second half [sic] of the AFC Championship Game.**

17 **There was a knock on the door by the General
18 Manager from the Indianapolis Colts, Ryan Grigson.
19 He proceeded in the room and he brought to myself,
20 and Mike Kensil was actually sitting to my left, and
21 said, "We are playing with a small ball." That was
22 my first knowledge of the situation.**

23 **Q.** You had never heard anything about the Colts
24 having made allegations before the game started
25 prior to that time?

1 **A. No, sir.**

2 **Q.** Okay. And what did you do after --

3 COMMISSIONER GOODELL: Did you say "second
4 half"?

5 THE WITNESS: It was second quarter.

6 COMMISSIONER GOODELL: Second quarter.

7 **Q.** What did you do after you received this
8 allegation from the Colts in the second quarter of
9 the game?

10 **A. So immediately as Ryan stepped out of the**
11 **room, I turned to my left and I just told Mike that**
12 **during halftime we should probably look at testing**
13 **all of the balls from both sidelines. And at that**
14 **particular time, he was on the phone with our**
15 **sideline officials putting steps in order.**

16 **Q.** So you were the one who made that decision
17 for that testing to be done?

18 **A. From inside the box, both Mike and I, we both**
19 **agreed that this should take place, yes, sir.**

20 **Q.** Okay. Now, prior to this time, when this
21 happened, were you familiar at all with the
22 procedures that the officials utilized for testing
23 pressure in footballs at games? Was that something
24 you were familiar with or was this the first time
25 you became familiar with that?

1 **A. No, I'm actually familiar, I was familiar**
2 **with the game-day process of the testing of game**
3 **balls on game day, yes, sir.**

4 **Q.** Okay. So prior to this game, okay, had you
5 ever heard of the Ideal Gas Law?

6 **A. No, sir.**

7 **Q.** Do you know if anyone in the NFL Game-Day
8 Operations had ever discussed the impact of the
9 Ideal Gas Law in testing footballs?

10 **A. Not with me.**

11 **Q.** You had never heard of that?

12 **A. I hadn't.**

13 **Q.** Okay. Now, in the procedures that were set
14 up prior to this game, okay, were there ever any
15 procedures where the referees were told they should
16 record temperature inside the room while they were
17 testing each football? Do you know if that was ever
18 an instruction given to the referees that they
19 should write down temperature or take temperature?

20 **A. No, sir.**

21 **Q.** Okay. That was not done?

22 **A. No, sir.**

23 **Q.** Okay. How about recording? Did you know
24 that they used multiple gauges sometimes, different
25 types of gauges to test footballs prior to this

1 game?

2 **A. There's one gauge, yes, sir.**

3 **Q.** There is one gauge or multiple gauges?

4 **A. Well, there's two, two gauges, but they**
5 **use -- they use the one gauge to test.**

6 **Q.** Right. But you knew there were two types of
7 gauges that could be used?

8 **A. Not types. I know that there are two gauges**
9 **that are on the premises.**

10 **Q.** The logo gauge and what we are calling the
11 non-logo gauge?

12 **A. Yes.**

13 **Q.** Did officials have instructions prior to this
14 game as to whether they should use a logo gauge or a
15 non-logo gauge to test?

16 **A. Not to my knowledge.**

17 **Q.** Okay. Were they asked to record anywhere in
18 writing which gauge they used when they were doing
19 testing?

20 **A. Not to my knowledge.**

21 **Q.** Okay. Were there any steps taken to preserve
22 gauges as they were utilized to keep them somewhere?

23 **A. The referee usually keeps them.**

24 **Q.** The referee usually keeps his own gauges?

25 **A. Yes.**

1 **Q.** Now, with respect to whether the balls were
2 wet or dry, do you know if there were any procedures
3 prior to this to record if a ball was wet or dry at
4 the time it was being tested for pressure?

5 **A. No, sir.**

6 **Q.** Okay. How about the timing of when the
7 testing was done? Was it ever instructed you should
8 record what minutes the test was done so you could
9 see how long the ball was in the room at the time of
10 testing?

11 **A. No, sir.**

12 **Q.** Okay.

13 COMMISSIONER GOODELL: Mr. Kessler, just so
14 I'm clear, are you talking about pre-game?

15 MR. KESSLER: Yes, I'm talking about pre --
16 about the whole game.

17 **Q.** My questions apply to the whole game. You
18 understand that?

19 **A. Okay.**

20 **Q.** In fact, let me ask you, prior to this game,
21 was it routine or required for balls to be tested
22 again at halftime, or was that only for this game?

23 **A. No, there was no routine. It was just**
24 **protocol was to test two hours and 15 minutes prior,**
25 **but it was brought to our knowledge that potentially**

1 **there could have been a violation.**

2 **Q.** Okay. So in all other NFL games generally,
3 there is no testing at halftime at all, correct?

4 **A. No, because we typically don't have a breach**
5 **with a game ball violation.**

6 **Q.** Okay. And there is typically no testing
7 after the end of the game regarding footballs,
8 either, correct?

9 **A. No, sir.**

10 **Q.** So the only testing the NFL had in place was
11 the testing before the game started as a routine
12 matter?

13 **A. Protocol, before the game.**

14 **Q.** Now, at the time that was true, did you know
15 that the footballs were automatically going to lose
16 pressure if it was cold outside compared to how warm
17 it was inside? Was that ever something you thought
18 about prior to this game?

19 **A. No, sir.**

20 **Q.** Okay. Now we then get to the halftime. You
21 were present for the halftime testing, correct?

22 **A. Yes, sir.**

23 **Q.** And is it fair to say you did not tell
24 anybody to record the temperature in the room at the
25 halftime testing, correct?

1 **A. No, sir.**

2 **Q.** And nobody recorded the temperature in the
3 room at the halftime testing, correct?

4 **A. Not to my knowledge.**

5 **Q.** Right. You didn't tell anybody to record the
6 exact time when different balls were tested at the
7 halftime, correct?

8 **A. No, sir.**

9 **Q.** And to your knowledge, nobody recorded that?

10 **A. Not to my knowledge.**

11 **Q.** You didn't tell anybody to record whether or
12 not the balls were tested on the Colts before
13 reinflating the Patriots' balls or after? You
14 didn't instruct anybody to record that anywhere,
15 correct?

16 **A. No, sir.**

17 **Q.** And to your knowledge, it was not recorded
18 anywhere?

19 **A. Not to my knowledge.**

20 **Q.** Okay. You didn't instruct anyone to indicate
21 whether the balls were wet or dry at the time they
22 were being tested, correct?

23 **A. No, but most were wet.**

24 **Q.** Most of the balls were wet? Let me ask you
25 about that. Do you recall during the game that in

1 the second quarter, the Patriots had the football

2 time in possession for a much longer period of time
3 than the Colts?

4 **A. No, sir, I don't recall that.**

5 **Q.** Let me represent to you, according to League
6 official statistics, the Patriots had the ball for
7 10:18 and the Colts had it only for 4:42, okay? So
8 let's assume that the League statistics are correct,
9 okay? You are a former player, correct?

10 **A. That's what they say.**

11 **Q.** Based on your years of experience as a
12 player, okay, is it correct that when the team has
13 the ball in offense, okay, the ball is out of the
14 bag and being used, but when you are on defense on a
15 rainy day, the balls are generally kept in the bag;
16 is that fair?

17 **A. My understanding, yes.**

18 **Q.** Okay. So is it also fair based on your
19 experience that if the Patriots had their balls in
20 play for ten minutes and 18 seconds while the Colts
21 only had their balls in play for four minutes and
22 42 seconds in the second quarter, it was very likely
23 that the Patriots' balls were going to be wetter
24 than the Colts' balls; is that fair?

25 **A. Possibly, yes.**

1 **Q.** Okay. And it's also true that some balls may
2 stay in the bag the whole time for both teams and
3 just be dry because they never came out of the bags,
4 right?

5 **A. Possible.**

6 **Q.** And when this testing was done, no one told
7 the referees, hey, see if it's a dry ball and note
8 that or if it's a wet ball, right? No one was asked
9 to record that?

10 **A. Not to my knowledge.**

11 **Q.** And the reason for no one doing this is
12 because neither you nor anyone else was thinking
13 about the Ideal Gas Law or how time or temperature
14 or wetness may affect these readings, right?

15 **A. Correct.**

16 **Q.** Okay. Now, let me show you the following,
17 which is NFLPA Exhibit 136. You will recognize
18 what's attached to this is a letter from Mr. Gardi
19 sent to Mr. Kraft on 19th. Do you see that?

20 **A. Mm-hmm.**

21 **Q.** Now, did Mr. Gardi do this on his own, make
22 this decision, or did you participate in the
23 decision to start this investigation by NFL security
24 that is described here?

25 **A. We spoke about this prior to game time on my**

1 **way back to the hotel that we tested game balls**
 2 **during halftime. And because the Patriots had**
 3 **eleven game balls that were under compliance, that**
 4 **this may -- we may need to do potential further**
 5 **investigation.**

6 **So Dave and I and others on our staff, we**
 7 **came to the conclusion that we probably need to do**
 8 **some additional follow-up.**

9 **Q.** Now, when you say, "They had eleven balls
 10 under compliance," what you meant is that they had
 11 eleven balls that were below 12.5 being measured,
 12 correct?

13 **A. Yes.**

14 **Q.** But at the time, you didn't know that some of
 15 that reduction could happen just because of cold or
 16 wetness or other factors, right? That just wasn't
 17 something you were aware of, correct?

18 **A. I didn't include science, no, sir.**

19 **Q.** Okay. Let me ask you this. If you look at
 20 this letter on the second page, it talks about the
 21 fact that one of the game balls was inflated to
 22 10.1 psi. Do you see that?

23 **A. Yes, sir.**

24 **Q.** Now, I am going to give you another exhibit,
 25 which is NFL 14. And you will see these are notes,

1 measurements which you signed, I believe that is on
 2 page 266. And that's also your signature, correct?

3 **A. Correct.**

4 **Q.** And, in fact, if you look at the Colts ball
 5 measurements on the right-hand side, the ones by
 6 Mr. Prioleau? Do you see that?

7 **A. Yes.**

8 **Q.** You will see that three out of the four
 9 Colts' balls are below the 12.5, correct?

10 **A. Correct.**

11 **Q.** Okay. So do you know why Mr. Gardi thought
 12 that the Colts game balls all met the requirements
 13 when on one of the gauges, three out of the four
 14 didn't go to 12.5?

15 **A. Well, here it is -- he's specifying that one**
 16 **of the two gauges -- that's how we looked at the**
 17 **Colts -- I mean, the Patriots' ball as well, neither**
 18 **of the gauges none or both gauges with the Colts'**
 19 **ball, none of them were in compliance. Or at least**
 20 **here with the Colts' ball, what we saw was that at**
 21 **least one of the gauges, they all were in**
 22 **compliance.**

23 **Q.** The letter doesn't say that, one gauge versus
 24 two gauges, right? It doesn't reference it?
 25 Mr. Gardi's letter doesn't say it was on one gauge

1 I believe, that were taken when the testing was
 2 done. And you signed them in several places. If
 3 you will look at page 256, I think it's the first
 4 time your signature appears; is that correct?

5 **A. Yes, sir.**

6 **Q.** And you signed this as a witness of the
 7 halftime testing; is that correct?

8 **A. That's correct.**

9 **Q.** Okay. And if you look at the listing of the
 10 pressures that are written down for the Patriots'
 11 eleven balls, none of them are as low as 10.1; is
 12 that correct?

13 **A. That's correct.**

14 **Q.** Okay. So do you know why Mr. Gardi thought
 15 that a ball was as low as 10.1 when none of those
 16 measures were here?

17 **A. No.**

18 **Q.** Okay. Let me ask you another one. His next
 19 sentence says, "In contrast, each of the Colts game
 20 ball that was inspected met the requirements set
 21 forth above and that requirement was 12 and a half
 22 to 13 and a half," correct?

23 **A. Correct.**

24 **Q.** Well, let's look at the Colts ball
 25 measurements. If you look at the Colts ball

1 versus the other, correct?

2 **A. Correct.**

3 **Q.** Now, at the time that you were looking at
 4 this, you had no idea what gauge had been used
 5 pre-game by the official to measure the balls,
 6 Mr. Anderson? You didn't know whether it was the
 7 logo gauge or the non-logo gauge, correct?

8 **A. That's correct.**

9 **Q.** Is it fair to say, Mr. Vincent, that there
 10 was a lot of confusion about what these numbers
 11 were, that Mr. Gardi didn't even know what the
 12 numbers were correctly at this time?

13 **A. Not at all.**

14 **Q.** You think it was very clear?

15 **A. I think it was clear.**

16 **Q.** So do you have any explanation -- is
 17 Mr. Gardi a lawyer?

18 **A. Yes.**

19 **Q.** Is he a careful lawyer?

20 **A. Yes.**

21 **Q.** If it was so clear, do you have any
 22 explanation as to how he could have "10.1" written
 23 down as the figure and it was not one of the
 24 figures?

25 **A. I can't speak for David.**

1 Q. So it wasn't clear for Mr. Gardi at least?

2 Would you give me that?

3 A. **Based on his letter, no.**

4 Q. You, in the discipline letter that you wrote

5 in this case, let's go to that. This is NFLPA

6 Exhibit 10. This was the discipline letter that you

7 sent out in this case; is that correct?

8 A. **Yes, sir.**

9 Q. Okay. And I note there has been a ruling

10 that I cannot ask you about delegation issues, so

11 I'm just noting that if not for that ruling, I would

12 be asking now at this point about that.

13 MR. KESSLER: But since you've ruled that I'm

14 not allowed to ask those questions, that's the

15 reason why I'm not going to waste our time and ask

16 questions which you said I can't ask. So I assume

17 that ruling stands?

18 MR. LEVY: The ruling stands. Let's move on.

19 MR. KESSLER: That's fine. I just want to

20 make sure the ruling stands. Okay.

21 Q. In the third paragraph, it says here, look at

22 the first paragraph. I am so sorry, in the third

23 paragraph, it says, "With respect to your particular

24 involvement, the report established that there is

25 substantial and credible evidence to conclude you

1 were at least generally aware of the actions of the

2 Patriots employees involved in the deflation of the

3 footballs and that it was unlikely that their

4 actions were done without your knowledge."

5 Do you see that?

6 A. **Yes, sir.**

7 Q. Is that the finding of the Wells report that

8 you relied on in order to impose discipline in this

9 matter?

10 A. **Yes, sir.**

11 MR. NASH: Objection to the form of that

12 question.

13 A. **This is what we derived from the Wells report**

14 **on information that was -- but we didn't impose**

15 **discipline.**

16 Q. Who imposed discipline?

17 A. **The Commissioner. We made recommendations to**

18 **our unit.**

19 Q. You made your recommendation based on this

20 particular finding in the Wells report that's

21 identified here?

22 A. **No. This is one factor that was included.**

23 Q. Okay. Did you personally read any of the

24 interview reports of the people that Mr. Wells

25 interviewed?

1 A. **Yes.**

2 Q. Okay. You did?

3 A. **In the Wells report?**

4 Q. Yes.

5 A. **Yes, sir.**

6 Q. So you had full access to the interview

7 reports that Mr. Wells did of different people in

8 making your decision?

9 A. **The report that was public, I read that**

10 **report, yes, sir.**

11 Q. Not the report, okay.

12 A. **I'm sorry; I'm sorry.**

13 Q. Let me be clear. Mr. Wells conducted a lot

14 of interviews and he made his own notes or reports

15 of his interviews, memoranda; did you read any of

16 those or did you just read the report?

17 A. **Oh, no, sir, no; I'm sorry. I didn't have**

18 **access to those.**

19 Q. So you based your recommendations of

20 discipline in this letter solely upon reading the

21 Wells report? That's what I wanted to establish.

22 A. **Yes.**

23 Q. You didn't read any other documents?

24 A. **Didn't have any other documents to read.**

25 Q. Okay. You didn't interview any other people

1 yourself?

2 A. **Oh, no, sir.**

3 Q. You didn't do any review of other documents

4 other than reading the Wells report? That's what I

5 want to be sure of.

6 A. **Looked at some previous cases.**

7 Q. Previous decisions?

8 A. **Mm-hmm.**

9 Q. Of discipline, correct?

10 A. **Well, of violations, more so violations in**

11 **this particular area.**

12 Q. Okay. Well, that's going to get to another

13 question I am going to ask. Did you look at any

14 previous examples of any player being disciplined

15 for a violation like this?

16 A. **No. I looked very hard and I was just**

17 **thinking about my time as a former player, a Union**

18 **representative, I just couldn't find -- we just**

19 **didn't see actions, this kind of action from a**

20 **player. You just, we didn't find this kind of**

21 **action or behavior of a player.**

22 Q. Let's look into that. Were you aware during

23 the 2014 season that there was an incident with the

24 Minnesota team having warm footballs?

25 A. **Yes, sir.**

1 **Q.** Okay. Would you agree with me that the
2 quarterback of Minnesota would have been generally
3 aware that those footballs would be warm to his
4 touch?
5 **A. I'm not aware of that just based off of the**
6 **reading of the file. No, this was just --**
7 **Q.** You were the executive vice president --
8 MR. NASH: Objection. Let him finish the
9 answer, please.
10 **Q.** Finish your answer.
11 **A. This is a game ball employee that took it**
12 **upon himself to warm a football. So you had a game**
13 **ball employee from the Carolina Panthers that was on**
14 **the Minnesota Vikings sideline that actually took**
15 **these things in his own action and thought that was**
16 **the proper thing to do.**
17 **Q.** Were those balls put into the game, the balls
18 he warmed?
19 **A. It was just one.**
20 **Q.** Was that one put into the game?
21 **A. No, sir.**
22 **Q.** How do you know that?
23 **A. Because the report would have said it.**
24 **Q.** Well, do you know that personally or just
25 assuming that?

1 **A. I'm assuming based off the evidence that was**
2 **in the report.**
3 **Q.** Did you start any investigation of any player
4 regarding that incident?
5 **A. There was no need because it was addressed**
6 **immediately. It was a natural break in the game and**
7 **our office called the sidelines to ask the question**
8 **and to make sure that there wasn't any other**
9 **misconduct.**
10 **Q.** What report are you referring to, by the way?
11 **A. Just the actual case itself, looking at the**
12 **paperwork.**
13 **Q.** Was there paperwork involved in that?
14 **A. Well, it was a follow-up from the office,**
15 **yes.**
16 MR. KESSLER: We had asked for that, and
17 there has been nothing produced, I don't believe, on
18 that. If I'm wrong, Dan, you can advise me.
19 MR. NASH: I think you have been produced
20 with everything.
21 MR. KESSLER: I just represent I don't
22 believe that has been produced to us, any kind of
23 written report. We know about the public report,
24 but we haven't seen any written report. So if there
25 is one, I would ask that it be produced.

1 **Q.** Let me ask you next about the following. Are
2 you aware -- let's take a look at NFLPA Exhibit 177.
3 You will see this is a report quoting Aaron Rodgers
4 that took place during the November 30th game
5 between the Packers and the Patriots.
6 And you will see that Mr. Rodgers was quoted
7 as saying, "I like to push the limit to how much air
8 we can put in the football, even go over what they
9 allow you to do and see if the officials take air
10 out of it."
11 Do you see that?
12 **A. Yes.**
13 **Q.** Did you or anyone in your office conduct any
14 investigation of Mr. Rodgers for making that
15 statement?
16 **A. No, sir.**
17 **Q.** Would you agree with me that if Mr. Rodgers
18 was pushing the limit of how much air could be in a
19 football, that that would be him at least being
20 generally aware of activities to try to violate the
21 NFL rules regarding pressure for footballs?
22 **A. The way I'm reading, this is a post-game**
23 **comment and there is no need for us to react or**
24 **overreact.**
25 **Q.** So this was not important enough for you to

1 react to Mr. Rodgers saying he liked to push the
2 limit and see if officials caught it; that was not a
3 serious thing for you to react?
4 **A. In a post-game interview. Because if the**
5 **testing of the games (sic) pre-game and all balls**
6 **were in regulation, there is no need for us to react**
7 **for post-game comment.**
8 **Q.** So in your view, Mr. Rodgers not even being
9 investigated and Mr. Brady being suspended for four
10 games for allegedly being generally aware of someone
11 else's activities, you think that's a consistent
12 treatment, in your mind?
13 **A. This is a post-game comment.**
14 **Q.** Okay. Let me ask you about this one. Take a
15 look at NFL Exhibit 1597, Exhibit 73.
16 MR. KESSLER: If we can give that to him,
17 please.
18 **Q.** Mr. Vincent, is this one of the incidents
19 that you looked at to see how things were treated in
20 the past regarding claims of tampering with
21 footballs?
22 **A. This was reviewed, yes, sir.**
23 **Q.** Okay. And so, you can see here that the
24 League, Mr. Hill, was he the Vice President of
25 Football Operations before you?

1 **A. Yes.**

2 **Q.** And you will see that he suspends this
3 employee of the Jets, Mr. Robinson, for trying to
4 use unapproved equipment to prep a kicking ball
5 prior to a game. Do you see that?

6 **A. Yes, sir.**

7 **Q.** Now, do you know why there was no
8 investigation made or action taken against a kicker
9 under the theory that he was generally aware that
10 this attendant would have been preparing the balls
11 for him in this manner?

12 **A. No, sir.**

13 **Q.** Now, the policy that you cite in your letter,
14 in your discipline letter regarding Mr. Brady --
15 well, let me ask you this.

16 Where do you find the policy that says that
17 footballs can't be altered with respect to pressure?
18 Is that going to be in the competitive integrity
19 policy that Mr. Wells cited in his report?

20 **A. Game-Day Operations Manual.**

21 **Q.** In the manual? Okay.

22 Is it correct, to your knowledge, that the
23 manual is given to clubs and GMs and owners, et
24 cetera, but the manual is not given out to players;
25 is that correct, to your knowledge?

1 **rep.**

2 COMMISSIONER GOODELL: I'm sorry; two game
3 officials?

4 THE WITNESS: Two game officials, yes, sir.

5 **Q.** Are the two game officials the people who did
6 the measurements?

7 **A. Yes, sir.**

8 **Q.** And to your observation, were they careful in
9 doing them?

10 **A. Yes, sir.**

11 **Q.** If I could ask you to look at NFLPA
12 Exhibit 136, you were asked some questions about the
13 letter to Mr. Kraft. At the time that this letter
14 was written, had any final determinations been made
15 about whether the Patriots or anybody associated
16 with the Patriots had actually violated the rules?

17 **A. No, sir.**

18 **Q.** What happened following the issuance of this
19 letter?

20 **A. Actually, once Dave sent the letter to the**
21 **club, I think there was maybe a few days later,**
22 **Mr. Wells and Jeff had came in too. We felt like an**
23 **independent investigation should take place.**

24 **Q.** Now, Mr. Kessler asked you about whether you
25 had been familiar with the Ideal Gas Law or other

1 **A. That's correct, to my knowledge.**

2 **Q.** In fact, when you were a player, you were
3 never given that manual, right?

4 **A. No.**

5 MR. KESSLER: I don't have any further
6 questions. Thank you very much.

7 CROSS-EXAMINATION BY

8 MR. NASH:

9 **Q.** Just a few questions, Mr. Vincent.

10 You were asked about your presence during the
11 halftime at the AFC Championship Game?

12 **A. Yes.**

13 **Q.** How would you describe the process that took
14 place; was it an orderly process? How would you
15 generally describe what happened in terms of the
16 measurement of the football?

17 **A. Very orderly. Actually, I was one of the**
18 **last to enter into the locker room. Upon my**
19 **entrance into the rear room where the officials**
20 **were, Al Riveron was actually directing traffic in a**
21 **very calm manner.**

22 **Q.** From your observations, who did the
23 measurements?

24 **A. I think it was Clete and it was two**
25 **officials, and then we had the one League security**

1 factors that could account for the decrease in the
2 inflation in the Patriots' balls. Do you remember
3 that?

4 **A. Yes.**

5 **Q.** Was the purpose of the investigation to look
6 into things like that?

7 **A. Yes, sir.**

8 **Q.** Now, you were asked a few questions about
9 other incidents. The first one you were asked about
10 was the Vikings. Do you recall that?

11 **A. Yes, sir.**

12 **Q.** If I could turn your attention to, I think
13 it's Exhibit 174, the NFLPA 174. Do you remember
14 seeing this article at the time?

15 **A. No, sir. This is the first I'm seeing it.**

16 **Q.** In looking at it, does this refresh your
17 recollection at all about the events of the Vikings
18 game?

19 **A. Yes.**

20 **Q.** Would you say that this accurately describes
21 your recollection of what happened at the Vikings
22 game?

23 **A. Yes.**

24 **Q.** Did you have any information at that time or
25 do you know of anyone at the NFL who had information

1 of any player being involved with the ball boy
 2 warming the football for the Vikings?
 3 **A. No, sir.**
 4 **Q.** You were asked about Aaron Rodgers. It's
 5 NFLPA Exhibit 177. Do you have that?
 6 **A. Yes, sir.**
 7 **Q.** You were asked about a quote, and I note in
 8 the quote it says something about to see if the
 9 officials take the air out of it. And you were
 10 asked whether you did an investigation.
 11 Did you have any information that either
 12 Mr. Rodgers or anyone from the Packers had actually
 13 tampered with a football after the officials
 14 measured it?
 15 **A. No, sir.**
 16 **Q.** Did you have any information or any evidence
 17 that either Mr. Rodgers or anyone associated with
 18 the Packers actually used the football in that game
 19 or any other game in which the inflation was not
 20 properly done on the footballs after the officials
 21 had measured it?
 22 **A. No, sir.**
 23 **Q.** Or at any time, did you have information that
 24 the packers or Mr. Rodgers used the football that
 25 was not properly inflated?

REDIRECT/VINCENT/KESSLER Page 255

1 **A. Not at all.**
 2 **Q.** If you had such knowledge and such evidence,
 3 would you have conducted an investigation?
 4 **A. What we would have done is our normal**
 5 **protocol. Before games, we would have tested the**
 6 **ball.**
 7 MR. NASH: Thank you.
 8 MR. KESSLER: Just a few more questions.
 9 REDIRECT EXAMINATION BY
 10 MR. KESSLER:
 11 **Q.** You just testified to Mr. Nash that NFLPA
 12 Exhibit 174 accurately described the incident with
 13 Minnesota. And so based on that, do you now recall
 14 that, in fact, it was both teams who were involved
 15 in warming footballs, plural, as stated in this
 16 article?
 17 **A. It was just, it was my knowledge that it was**
 18 **just the one team.**
 19 **Q.** Okay. So now, so even though you just
 20 testified under oath that the article accurately
 21 characterized it, it is now your new testimony that
 22 the article is mischaracterizing that?
 23 MR. NASH: Objection; mischaracterizing what
 24 he said.
 25 **A. No, this is the first I've actually seen the**

1 **article.**
 2 **Q.** Why did you say it characterized it correctly
 3 when your counsel just asked you that question?
 4 **A. Based off what the article represents.**
 5 **Q.** The article represents that both teams were
 6 warned, correct? That's what the article says?
 7 **A. Yes, sir.**
 8 **Q.** Were both teams warned?
 9 **A. Based off the article, yes.**
 10 **Q.** Okay. So if both teams were warned, that
 11 would mean that both teams were involved in the
 12 activity, right, not just one?
 13 **A. That's correct.**
 14 **Q.** Okay. And so both teams, it would involve
 15 more than one football, at least one football for
 16 each team, correct?
 17 **A. That's not correct.**
 18 **Q.** Well, were both teams warming the same
 19 football?
 20 **A. Well, it was because you had National take**
 21 **place, you want to inform both teams that this is**
 22 **not prohibited.**
 23 COMMISSIONER GOODELL: Are you saying
 24 "warned" or "warned"?
 25 MR. KESSLER: "Warm."

REDIRECT/VINCENT/KESSLER Page 257

1 COMMISSIONER GOODELL: "Warm"?
 2 MR. KESSLER: "Warm," W-A-R-M is what the
 3 article said.
 4 **Q.** This was a game that was played in minus
 5 seven degrees; is that correct? That is what the
 6 article says?
 7 **A. Yes.**
 8 **Q.** So it was a very, very cold game. And what
 9 was happening, according to the article, is sideline
 10 attendants were using heaters to warm the footballs,
 11 right?
 12 **A. Correct.**
 13 **Q.** And would you agree with me it's a frozen
 14 game, okay. Someone's using sideline heaters. If a
 15 quarterback felt that ball, he would be generally
 16 aware that the ball had been warmed in this frozen
 17 game? There's no way to not be aware of that? You
 18 are a football player. You are aware of that?
 19 **A. I'm not a quarterback.**
 20 **Q.** Have you handled a football with the National
 21 Football League?
 22 **A. Yes.**
 23 **Q.** Okay. Do you think in a frozen game if
 24 someone put in a heated, you would notice, oh, this
 25 feels warmer than I thought it would?

1 **A. With gloves on, I'm not sure.**

2 **Q.** You are not sure about that?

3 In any event, nothing was done to even
4 investigate the quarterbacks in this matter,
5 correct, by you?

6 **A. Here, it says here in the article that he**
7 **warned both teams.**

8 **Q.** Right. But there was no investigation made
9 of whether the quarterbacks knew about it or whether
10 the quarterbacks asked the attendants to do
11 anything? There was no investigation of that at
12 all?

13 **A. That's correct.**

14 **Q.** And then finally, going back to NFL
15 Exhibit 14, which are the notes you signed, and I
16 want to look back on page 256. It states here, if
17 you look at the -- this is the two different tests.

18 And I'm looking at the one where it says,
19 "Tests by Darrel" -- is it "Prioleau" ["pray-loo"
20 phonetically]?

21 **A. That's correct.**

22 **Q.** It says here, "Belonging to JJ."

23 Do you see that right at the top? Right next
24 to the 11.8, it says, "Belonging to JJ."

25 **A. Mm-hmm.**

1 **Q.** Now, you signed these notes, right?

2 **A. Yes, sir.**

3 **Q.** This page you signed, right?

4 **A. Yes.**

5 **Q.** Do you know what "belonging to JJ" refers to?

6 **A. No, sir.**

7 **Q.** Do you know if that refers to the fact that
8 the gauge used by Mr. Prioleau was, in fact, a gauge
9 that belonged to Mr. Jastremski?

10 **A. Not to my knowledge.**

11 **Q.** So you don't know what that refers to?

12 **A. No, sir.**

13 MR. KESSLER: I have no further questions.

14 MR. NASH: Just very briefly.

15 RECROSS-EXAMINATION BY

16 MR. NASH:

17 **Q.** Just the Vikings article, I want to follow up
18 on the Commissioner's question. I'm not sure
19 Mr. Kessler accurately described the article. I
20 thought there was a suggestion that the article said
21 that both teams actually warned the football.

22 What was your recollection of the incident?

23 **A. That, my recollection of the game was that**
24 **you had a game ball employee that was working that**
25 **particular game, actually from the Carolina Panthers**

1 **who actually took it upon himself to warn a**
2 **football.**

3 **Q.** And in terms of both teams, all this article
4 refers to that both teams were warned?

5 **A. That's correct.**

6 **Q.** And it also says in the article that, "The
7 sideline attendants involved in that likely meant
8 well."

9 Was that your understanding of that
10 situation?

11 **A. Yes.**

12 **Q.** And again, did this or any other report that
13 you received about the Vikings incident give you any
14 indication that any player was in any way involved?

15 **A. No player or anyone else was involved. No**
16 **one else was involved.**

17 MR. NASH: Thank you.

18 MR. KESSLER: Nothing further.

19 MR. LEVY: Thank you.

20 COMMISSIONER GOODELL: Thank you.

21 MR. KESSLER: You want to keep going or
22 should we take a brief break? Mr. Wells, the
23 witness, would like a brief break.

24 (Recess taken 3:54 p.m. to 4:03 p.m.)

25 MR. KESSLER: Our next witness will be

1 Mr. Ted Wells.

2 Please swear in the witness.

3 **THEODORE WELLS**, called as a witness,
4 having been first duly sworn by a Notary Public of
5 the State of New York, was examined and testified as
6 follows:

7 DIRECT EXAMINATION BY

8 MR. KESSLER:

9 **Q.** Good morning, Mr. Wells. Would you state
10 your full name for the record, please.

11 **A. Theodore V. Wells, Jr.**

12 **Q.** Okay. And what is your current occupation?

13 **A. I am a partner at the law firm of Paul,**
14 **Weiss.**

15 **Q.** And Mr. Wells, were you hired to be the
16 co-lead investigator in connection with the issues
17 surrounding the AFC Championship Game of last year?

18 **A. Yes, but I want to clarify your description**
19 **with respect to "co-lead investigator." I was asked**
20 **by Jeff Pash to become the independent investigator**
21 **for the NFL with respect to what has become known as**
22 **"Deflategate." That request was made on**
23 **January 21st.**

24 **A couple of days later, the NFL released a**
25 **press release announcing that I had been hired and**

1 **said -- and I don't have it in front of me; I**
 2 **apologize -- but it said in substance that I and**
 3 **Jeff Pash would be overseeing the investigation and**
 4 **I would be adding independence.**
 5 **I immediately telephoned Mr. Pash because I**
 6 **had not been told that we were going to be doing it**
 7 **jointly. And Mr. Pash explained to me that I would**
 8 **be the independent investigator, that he would be**
 9 **there to help facilitate on procedural-type issues**
 10 **and dealing with the Patriots, but that we were**
 11 **going to run it the same we had run the Dolphins**
 12 **investigation, which was I would be the independent**
 13 **investigator with my team.**

14 **We would make -- "we" meaning Paul, Weiss,**
 15 **would make all of the decisions with respect to the**
 16 **investigation and that it would be my report and**
 17 **despite what had been said in that press release**
 18 **about his being my, quote, co- -- I don't even know**
 19 **if it uses those words, Jeff running with me, that**
 20 **we were going to run it like the Dolphins**
 21 **investigation.**

22 **Q.** Okay. Let me ask you, you might as well get
 23 out a copy of your report.

24 **A.** Sure, I have a copy in front of me.

25 **Q.** Look at page 1 of your report, the Executive

1 Summary.

2 **A.** Sure.

3 **Q.** And is it fair to say, Mr. Wells, that you
 4 stand by every word written in your report?

5 **A.** I hope so, yes, yeah.

6 **Q.** You try to have it written carefully and
 7 correctly, correct?

8 **A.** Yes, sir.

9 **Q.** So on the very first page 1 in the Executive
 10 Summary in the second paragraph, it says, "On
 11 January 23, 2015, the NFL publically announced that
 12 it had retained Theodore V. Wells, Jr. in the law
 13 firm Paul, Weiss, Rifkind, Wharton & Garrison
 14 ("Paul, Weiss") to conduct an investigation together
 15 with NFL Executive Vice President Jeff Pash into the
 16 footballs used by the Patriots used during the AFC
 17 Championship Game."

18 And then it says, "The investigation was
 19 conducted pursuant."

20 You see that?

21 **A.** Yes, sir.

22 **Q.** When you wrote this down, this was now when
 23 your report was issued, which was May 6, 2015,
 24 correct?

25 **A.** Yes.

1 **Q.** This is long after the NFL press release and
 2 after you had your conversation with Mr. Pash as to
 3 how the investigation was going to be conducted,
 4 correct?

5 **A.** Yes, sir.

6 **Q.** But you still thought it was appropriate,
 7 correct and accurate to, on the first page of your
 8 Executive Summary, describe the investigation as
 9 being one in which you were conducting an
 10 investigation together with Mr. Pash?

11 **A.** No. You totally misread the sentence. The
 12 sentence says that, "On January 23rd, the NFL
 13 announced."

14 **Now, that's the public statement. That's**
 15 **what that sentence is quoting. If you go down to**
 16 **the last sentence, "It was prepared entirely by the**
 17 **Paul, Weiss investigative team and presents the**
 18 **independent opinions of Mr. Wells and his**
 19 **colleagues."**

20 **So there, I'm clarifying, despite what they**
 21 **announced in a piece of paper issued to the press on**
 22 **January 23rd, I'm saying to any reader of this**
 23 **report that this report was done by Paul, Weiss and**
 24 **it is the independent opinion of Mr. Wells and his**
 25 **colleagues.**

1 **So I cut Mr. Pash out, though I have**
 2 **announced -- I'm sorry -- I've set forth in that**
 3 **first sentence what the NFL put out there.**

4 **Q.** So when you prepared this report, did
 5 Mr. Pash see any drafts of this report before it was
 6 final?

7 **A.** I don't know whether that's privileged or
 8 what. You tell me.

9 MR. NASH: I would object to the extent that
 10 your answers would have to reveal any privileged
 11 communications. But otherwise, I think you can
 12 answer subject to that objection.

13 **A.** Okay. I don't want to waive anything, but
 14 the answer is yes.

15 **Q.** He did receive drafts of the report?

16 **A.** Yes, sir.

17 **Q.** Okay. Did he give you comments on the report
 18 before it was issued after seeing it either verbally
 19 or in writing?

20 MR. NASH: I think the best way -- I don't
 21 want to get into --

22 THE WITNESS: You guys tell me what to do.

23 MR. NASH: I think there's been a ruling
 24 about Mr. Wells's testimony. So to the extent that
 25 they are addressing Mr. Pash's role, I think the

1 ruling had to do with whether Mr. Pash was
 2 substantially involved in the investigation or in
 3 the report itself.
 4 If they want to ask questions to that, they
 5 certainly can do so. But I would object on
 6 privileged grounds to questions about communications
 7 between Mr. Wells and Mr. Pash, the General Counsel
 8 of the NFL.

9 MR. KESSLER: Let me now state the following,
 10 if I can. Mr. Wells just testified he was
 11 independent and the NFL was not his client.

12 Therefore, Mr. Pash's communications with him
 13 could not be privileged under any possible
 14 application of the privilege, unless Mr. Wells wants
 15 to change his testimony and state that the NFL was
 16 his client in this matter, which would mean he is
 17 not independent.

18 MR. NASH: I object. You are
 19 mischaracterizing what he said.

20 MR. KESSLER: Okay.

21 Q. Was the NFL your client in this matter? Did
 22 you act as their lawyer when you did this
 23 investigation?

24 A. To my understanding, I was being hired by the
 25 NFL, and that's who pays my bills, to do what I have

1 described as an independent investigation with
 2 respect to Deflategate. And what I mean by "an
 3 independent investigation," is that the opinions
 4 represented in this report and conclusions were
 5 those of myself and the Paul, Weiss team.

6 Jeff Pash, and I don't think this waives any
 7 privilege, Jeff Pash did not attend any witness
 8 interviews. I did not deliberate or involve him on
 9 my deliberations with respect to my assessment of
 10 those interviews. Mr. Pash played no substantive
 11 role in the investigation itself. So I'm trying to
 12 give you facts without waiving.

13 Q. I will ask it this way.

14 A. Okay.

15 Q. Did you consider the NFL to be your client
 16 for purposes of the attorney-client privilege --

17 A. Yeah.

18 Q. -- with respect to the preparation of this
 19 investigative report?

20 A. Yes.

21 Q. Okay. That is fine.

22 Now so, therefore, I will just ask you --

23 A. Okay.

24 Q. -- will you not, then, answer questions about
 25 what type of comments Mr. Pash made on your draft

1 report before it was -- before it was issued?

2 A. I'm going to follow whatever -- it's not my
 3 privilege, sir. I just have to -- need to follow
 4 his advice.

5 MR. NASH: Yeah, I would object to the extent
 6 that I think Mr. Wells has already explained the
 7 role of Mr. Pash, the role of the Paul, Weiss firm
 8 and who the report was prepared by and who the
 9 conclusions -- who prepared the conclusions as well.

10 To the extent that he wants to get further
 11 into communications, I think he's now trying to get
 12 into attorney-client privilege.

13 MR. LEVY: Without prejudice to the assertion
 14 of any privilege down the road, Mr. Wells can answer
 15 the question that was presented. The question was,
 16 did Mr. Pash give you any comments?

17 Q. Yes. Did he provide written or oral
 18 comments?

19 A. Yes.

20 Q. Okay. Were they written?

21 A. Not to my knowledge, but the truthful answer
 22 is he didn't provide any to me, okay.

23 Q. Did he provide it to another member of your
 24 team?

25 A. I believe so.

1 Q. Okay. And you don't know whether they were
 2 in writing or orally?

3 A. I do not.

4 Q. Do you know what the contents were of his
 5 comments?

6 A. I do not, except to say they couldn't have
 7 been that big a deal because I don't think I heard
 8 about them. But, you know, Mr. Pash is a very good
 9 Harvard-trained lawyer. If you give a
 10 Harvard-trained lawyer a report this thick, he's
 11 going to have some kind of comment. So I assume
 12 whatever it was, it was some kind of wordsmithing.
 13 I can tell you this without waiving any privilege.

14 Mr. Pash -- Mr. Pash's comments did not
 15 affect, and from the time I gave him that --
 16 whenever he got that draft of the report, did not
 17 impact in any substantive fashion the conclusions
 18 with respect to my findings with respect to
 19 violations by the Patriots or violations by
 20 Mr. Brady, nothing. You know, there was no
 21 substantive change.

22 Q. Mr. Wells, I assume that you are not the
 23 first drafter of this report, correct? One of your
 24 colleagues would have prepared the first draft and
 25 you would have reviewed it; is that fair?

1 **A. I think that's privileged, but I will answer**
2 **as long as it's not a waiver, yes.**

3 **Q.** Okay. Would your principal colleague on this
4 case be Mr. Lorin Reisner who is seated over there?

5 **A. Correct.**

6 **Q.** Now, Mr. Reisner, you observed, was
7 representing the NFL and cross-examining Mr. Brady
8 and Mr. Snyder in this proceeding; is that correct?

9 **A. That is -- I saw it. You saw it.**

10 **Q.** Okay. So, and Mr. Reisner was one of the
11 principal lawyers working with you on this
12 independent investigation, right?

13 **A. If you read the report, it basically says**
14 **that.**

15 **Q.** So is it fair to say Mr. Reisner -- is Paul,
16 Weiss also being compensated for representing the
17 NFL in this hearing, conducting cross-examination?
18 Have they been hired as NFL counsel for that
19 purpose?

20 **A. As I understand it, again, if I can answer**
21 **without waiving any privilege, in terms of**
22 **cross-examining both the experts and cross-examining**
23 **Mr. Brady since we had already examined him and done**
24 **the work, everybody thought it would be more**
25 **efficient --**

1 **Q.** Let's move on to another subject. Now, going
2 back to that same first page of your report, page 1,
3 you say, "The investigation was conducted pursuant
4 to the policy on integrity of the game and
5 enforcement of competitive rules."

6 Do you see that?

7 **A. Yes.**

8 **Q.** To your knowledge, that's the only policy
9 that you were told about that you were conducting
10 your investigation pursuant, correct?

11 **A. That is correct.**

12 **Q.** Okay. Now, at the time you did this report,
13 did you have any knowledge or did you determine
14 whether or not that policy was ever given out to
15 players?

16 **A. I have no knowledge one way or the other.**

17 **Q.** Did you learn for the first time today at
18 this hearing that it was not given out to players?

19 **A. I think -- I think I heard something to that**
20 **effect.**

21 **Q.** Today?

22 **A. In terms of whatever knowledge I have is what**
23 **I heard today.**

24 **Q.** Today? And it was prior to today and
25 certainly at the time you issued this report you

1 MR. NASH: I am going to stop you right
2 there, Mr. Wells. I don't think this is an
3 appropriate line of questioning and we are now
4 getting into privilege. And I have to say it also
5 isn't relevant to any issue in Mr. Brady's appeal.

6 MR. LEVY: Sustained.

7 MR. KESSLER: Okay. I would ask you to, just
8 for the record, my observation that the statement
9 that the Paul, Weiss firm is independent is clearly
10 not correct. We now have testimony that they
11 represented the NFL in this proceeding. They viewed
12 the NFL as their client.

13 **Q.** I will just ask one more question about this.

14 **A. Sure.**

15 **Q.** Do you agree, Mr. Wells, as an attorney, that
16 you, when you have a client or any client, the NFL,
17 anyone else --

18 **A. Sure.**

19 **Q.** -- you have a duty under the ethical rules to
20 zealously advocate and advance the interest of that
21 client? Is that fair, under the ethical rules?

22 MR. NASH: Objection. We are now getting
23 into arguments.

24 MR. LEVY: Sustained.

25 THE WITNESS: Okay.

1 didn't know one way or another whether that policy
2 was something given out to players?

3 **A. That is correct.**

4 **Q.** Now, with respect to your finding that
5 Mr. Brady -- let's go to a specific finding. Let's
6 look at, I am going to your Executive Summary.
7 Let's go to your findings with respect to Mr. Brady.

8 **A. Page 2?**

9 **Q.** Page 2. So on page 2 of the report --

10 **A. Second paragraph.**

11 **Q.** -- it says the following. You say, "Based on
12 the evidence, it also was our view that it was more
13 probable than not that Tom Brady, the quarterback
14 for the Patriots, was at least generally aware of
15 the inappropriate activities of McNally and
16 Jastremski involving the release of air from
17 Patriots game balls."

18 Is that a fair summary of what you concluded
19 with respect to Mr. Brady that you put here?

20 **A. Yes, just what I wrote.**

21 **Q.** Okay. Now, am I correct that you don't make
22 any finding in the report that Mr. Brady
23 participated himself in engaging in any activities
24 to deflate footballs, right? You don't make such a
25 finding?

1 **A. Well, what I say in the report is that, one,**
 2 **I believe Mr. Brady was generally aware of the**
 3 **activities of Jastremski and McNally.**

4 **I also say in the report that, based on my**
 5 **personal observations of Jastremski and McNally,**
 6 **both of whom we interviewed, I do not believe that**
 7 **these two gentlemen would have engaged in their**
 8 **deflation activities without -- I may use the word**
 9 **knowledge and awareness of Mr. Brady.**

10 **I'm not sure if those are the exact words,**
 11 **but that's the substance of what I say in the**
 12 **report.**

13 **Q. Okay. But you don't make any finding that,**
 14 **if you listen to my specific question --**

15 **A. Sure, okay.**

16 **Q. -- that it is more probable than not based on**
 17 **the evidence that Mr. Brady himself directed them to**
 18 **deflate the ball in that game, correct? You don't**
 19 **make such a finding here?**

20 **A. I'm hesitating about the word "direct,"**
 21 **because what I do say in the report is I don't think**
 22 **they would have done it without his knowledge and**
 23 **awareness.**

24 **Now, but I don't have a phrase, you are**
 25 **correct, where I say he directed them. What I say**

1 **them done, which we interpret to mean getting the**
 2 **balls deflated. So that's direct evidence of**
 3 **knowledge and involvement.**

4 **Q. That's the Jets game when those**
 5 **communications took place, right?**

6 **A. That's correct.**

7 **Q. Were the balls deflated in the Jets game or**
 8 **inflated?**

9 **A. In that particular situation, what they**
 10 **were -- what they were discussing was the inflation**
 11 **of the balls in the Jets game, but you have to step**
 12 **back in terms of how we viewed the evidence.**
 13 **Mr. McNally was a locker room attendant.**
 14 **Mr. McNally had no duties involving inflation or**
 15 **deflation of balls.**

16 **Mr. McNally's job was to care for the**
 17 **referees. In fact, I'm not sure if we say it in the**
 18 **report, but the referees actually would get together**
 19 **and put together tips to give Mr. McNally at the end**
 20 **of the game. They only tipped two people, the bus**
 21 **driver and the locker room attendant.**

22 **So Mr. McNally is somebody who Mr. Brady said**
 23 **he didn't even know, who should not have had**
 24 **anything to do with balls, yet Mr. Brady is saying**
 25 **that Mr. McNally must have a lot of stress getting**

1 **is I believe that they would not have done it unless**
 2 **they believed he wanted it done in substance.**

3 **Q. And that would apply even if he never told**
 4 **them to do it, even if he never authorized them to**
 5 **do it, even if he never said do it? What you were**
 6 **stating there is you believe that because he was Tom**
 7 **Brady, okay, that they would not have done something**
 8 **unless they thought it would be something he would**
 9 **like or want, right?**

10 **A. No.**

11 **Q. Isn't that fair to what you concluded?**

12 **A. No, no, no, that goes way too far in the**
 13 **sense that you are not looking at the evidence that**
 14 **I cite.**

15 **For example, one of the core pieces of**
 16 **evidence that we cite against Mr. Brady is the text**
 17 **message where McNally says, "Fuck Tom."**

18 **And Jastremski says in substance, "He asked**
 19 **about you yesterday. He said it must be a lot of**
 20 **stress getting the balls done."**

21 **So that message we interpret in the report to**
 22 **mean that Tom Brady actually had a conversation with**
 23 **Jastremski and during that conversation, he actually**
 24 **asked about McNally and the statement was made by**
 25 **Brady that McNally must have a lot of stress getting**

1 **them done, which as I said, we interpret to mean**
 2 **deflation, even though it was in the context, and**
 3 **you are correct, of the Jets game.**

4 **Q. Even though it was all about inflation, you**
 5 **interpret it to be about deflation?**

6 **A. That's correct, sir.**

7 **Q. And did you also look at the e-mail where --**

8 **A. E-mail or text?**

9 **Q. The e-mail. I will show you the e-mail.**
 10 **This is on page 86 of your report -- the text; I'm**
 11 **sorry --**

12 **A. I was just trying to make sure.**

13 **Q. -- where he said --**

14 **A. Hold on.**

15 **COMMISSIONER GOODELL: 86, did you say?**
 16 **MR. KESSLER: Yes, 86.**

17 **A. You just threw me off when you said "e-mail."**

18 **Q. Sorry. Okay, the text, when he's writing to**
 19 **his fiancé Panda and he says, "I just mentioned some**
 20 **of the balls. They are supposed to be 13. They**
 21 **were, like, 16."**

22 **Do you see that?**

23 **A. Yes.**

24 **Q. Now, 13 would be within the legal limit,**
 25 **right?**

1 **A. Yes.**

2 **Q.** So what he was saying here, he thought the
3 balls were supposed to be 13, not lower than the
4 legal limit? That's what he wrote, right?

5 **A. That's what he wrote.**

6 **Q.** Right. Do you have any reason to think why
7 he would lie to his fiancé about this subject after
8 the Jets game? What would be his motive?

9 **A. I didn't say he lied to his fiancé.**

10 **Q.** Okay. So then, you believe that
11 Mr. Jastremski truthfully told his fiancé that he
12 was trying to get the balls to 13 and they came out
13 16, right? That was a truthful statement, you
14 believe?

15 **A. Yes.**

16 **Q.** Okay. And if he was trying to get them to
17 13, that was not a deflation below the limit, was
18 it?

19 **A. No.**

20 **Q.** Okay, thank you.

21 Now, Mr. Wells, how much was Paul, Weiss paid
22 to do this report?

23 **MR. NASH:** Objection as to privilege and
24 relevance. There is no question that they were
25 paid. I don't see how --

1 **MR. KESSLER:** Definitely not privileged.

2 **MR. NASH:** I don't see how it bears on any
3 issue relevant to Mr. Brady's appeal.

4 **MR. LEVY:** I am going to allow it.

5 **Q.** How much were you paid?

6 **A. I don't know. The "paid" question is**
7 **interesting.**

8 **Q.** Billed, I will go with billed. How much was
9 billed?

10 **A. For the report, through May 6th, it's**
11 **somewhere in the area -- and I'm not sure the bill**
12 **was out, but it's going to be around somewhere in**
13 **the range of 2.5 to 3 million.**

14 **Q.** And you would be paid additional amounts for
15 the work that Mr. Reisner is doing today or others
16 assisting the NFL? That would be additional bills,
17 right?

18 **A. I hope so.**

19 **Q.** Yes. By the way, are you billing for your
20 testimony today as a witness?

21 **A. I don't know. I haven't broached that.**

22 **Q.** Okay. Now, let me ask you next when you were
23 retaining Exponent in connection with this matter,
24 did you have discussions with other experts before
25 you retained Exponent?

1 **A. Yes.**

2 **Q.** Okay. And how many experts did you consider?

3 **A. Well, what happened was as follows. Right**
4 **after I was retained, there started to be a lot of**
5 **publicity about the Ideal Gas Law. And I started**
6 **getting parroted with articles about the Ideal Gas**
7 **Law, so it was clear I needed to hire experts**
8 **preferably physicists.**

9 **We reached out to Columbia University.**

10 **Columbia has a very respected Physics Department.**

11 **It was close, in close proximity to Paul, Weiss. So**

12 **our hope at that time was that we could find**

13 **somebody at Columbia. Mr. Reisner sent an e-mail to**

14 **the Physics Department at Columbia asking if they**

15 **could help us, and I think he may have also talked**

16 **to somebody. And he told them this is confidential.**

17 **To our shock, after he contacted Columbia's**

18 **Physics Department, there was an article, either the**

19 **next day or the day after in the New York Times that**

20 **Paul, Weiss had reached out to the Columbia Physics**

21 **Department. And we were, to say, the least outraged**

22 **that we had reached out in what we thought was a**

23 **confidential contact and then it was published in**

24 **the New York Times.**

25 **What happened, so that disqualified Columbia.**

1 **Columbia was where we wanted to go. What happened**

2 **next is that a professor from Columbia e-mailed**

3 **Mr. Reisner maybe the next day, and the professor**

4 **said that he understood we were looking for experts**

5 **in physics and he recommended Exponent.**

6 **And he said that Exponent was where many of**

7 **Columbia's graduates who wanted not to go the**

8 **academic route would go and work and he thought it**

9 **was a first-class outfit and that that's who we**

10 **should talk to.**

11 **And he actually had in the e-mail, I think,**

12 **Gabe's name, and we contacted him. So that's how --**

13 **so we get to Exponent through the recommendation of**

14 **Columbia. Now, at the same time, because we don't**

15 **know whether Exponent is going to work out, we**

16 **contact the Princeton Physics Department. And they**

17 **recommend that we should talk to Dr. Marlow.**

18 **So at this juncture, we scheduled two**

19 **interviews. We schedule an interview with Exponent**

20 **and we schedule an interview with Dr. Marlow. And**

21 **the fact that the people in the Physics Department**

22 **at Columbia had leaked to The Times had us a little**

23 **nervous about going the academic route. So we were**

24 **somewhat more attracted maybe going to a traditional**

25 **consulting firm.**

1 We met, and I'm not sure what order, but it
 2 was within a day of each, we met with each of them
 3 separately. I thought Exponent had the resources,
 4 because we thought we would need testing, not only
 5 of the gauges, and we didn't know a lot.
 6 You know, this is in the early days. This is
 7 first few days. But we knew we had to test these
 8 gauges because the first question is, do the gauges
 9 work? Are they reliable?
 10 We didn't know if there was impact of -- on
 11 the footballs of just playing in the game, whether
 12 it's pounding, a 300-pound lineman falls on the ball
 13 or something. So we knew we needed people with
 14 resources to do testing.
 15 So we meet with Exponent and we liked -- and
 16 we liked them. And then we met the next day with
 17 Dr. Marlow and we liked him. But we were very
 18 concerned because of what happened with Columbia
 19 about doing any testing at Princeton because
 20 Dr. Marlow said if we wanted to do the tests in the
 21 Princeton lab, because of federal regulations or
 22 what have you, they have a lot of students and they
 23 couldn't guarantee confidentiality.
 24 So again, we were back into the academic
 25 world and concerned that we are going to have leaks.

DIRECT/WELLS/KESSLERPage 283

1 What we ultimately decided to do was to hire both.
 2 We hired Exponent to be the lead expert in terms of
 3 doing the tests that needed to be done and advising
 4 us on how to look at this data. And we hired
 5 Dr. Marlow as our consultant and his job was to
 6 watch Exponent.
 7 So we kind of had what I will call belt and
 8 suspenders. We have got a firm that we believed had
 9 the resources to do the testing, and we thought we
 10 would need physicists and engineers and
 11 statisticians, but also a lot of equipment that you
 12 might not have in an academic setting. And we
 13 wanted privacy, okay, we didn't want leaks. We were
 14 very conscious. We did not want leaks.
 15 So we get Dr. Marlow. Like I said, his job
 16 is to really watch. He's supposed to work with
 17 Exponent, but he's supposed to -- he's not doing
 18 testing. He is listening to their work plan. He's
 19 listening to, you know, their ideas. He's running
 20 numbers.
 21 They are going to run numbers, but he's my
 22 eyes and ears so I got to double-check. And one
 23 other thing I want to say is that I told them both
 24 in the interview before I even hired them, I said
 25 what this job involves is similar to being a

1 court-appointed expert.
 2 I said you should view us like a judge or a
 3 court that's hiring an expert. I said we have no
 4 dog in this race. All we want to know is how to
 5 look at this data. That's the job.
 6 And we have no thesis. It's not like a
 7 normal, in the world we live in, Mr. Kessler, where
 8 you and I represent a client and we have got a
 9 particular position, be it the plaintiff or the
 10 defendant, and you got a thesis and you want an
 11 expert to know whether or not you can support that.
 12 We said we don't care about the outcome at
 13 all. We just want objective science, and understand
 14 that. So those, we told them those were the terms
 15 if they wanted to come on board. And they were both
 16 fine with that. So that's a long-winded way of how
 17 we got to Exponent.
 18 Q. Is it fair to say, Mr. Wells, that Paul,
 19 Weiss is a law firm, not a law firm of statisticians
 20 or physicists or scientists? Is that fair to say on
 21 the whole?
 22 A. That is true, but I will tell you we are
 23 blessed with such talent that we ended up finding
 24 that we had a Ph.D. physicist among our associates
 25 and we added that young man to the team. But I was

DIRECT/WELLS/KESSLERPage 285

1 shocked to find out that we had such a person.
 2 Q. Let me ask the question differently.
 3 A. Your answer is yes.
 4 Q. Did you rely upon Exponent and Dr. Marlow to
 5 reach whatever testing, scientific, statistical
 6 conclusions were presented?
 7 A. Yes.
 8 Q. And so Paul, Weiss didn't independently make
 9 any scientific testing, statistical conclusions on
 10 its own, correct?
 11 A. That is correct.
 12 Q. Okay. And is it fair, then, that if for
 13 whatever reason it was concluded that Exponent's
 14 work was not a basis for reliable conclusions here,
 15 that then there would be no scientific conclusions
 16 that are reliable in your report?
 17 In other words, you don't have any other
 18 source of reliable evidence about the balls other
 19 than what you claim is done by Exponent as
 20 supervised by Dr. Marlow; is that correct?
 21 A. I have no other source; that is correct.
 22 Q. Right.
 23 A. My only hesitancy about adopting your
 24 question in full is if it was established there was
 25 a mistake in some small area and it didn't impact

1 **the overall conclusion, that wouldn't necessarily**
 2 **invalidate the entire analysis. But I think we are**
 3 **on the same page.**

4 **Q.** If it was something sufficient to render it
 5 unreliable, then there would be no reliable
 6 scientific findings here?

7 **A.** Yeah, I do not have any independent
 8 scientific analysis within my team or somewhere
 9 else. You are correct.

10 **Q.** Okay. Now, Dr. Marlow's specialty is
 11 theoretical physics; is that correct?

12 **A.** That's my understanding.

13 **Q.** He is not an expert statistician, right?

14 **A.** No, but as part of the -- well, I don't know
 15 that. I don't want to say that he's not an expert
 16 statistician because I do not know. I know
 17 Exponent, we have a professor of statistics with a
 18 Ph.D. who is a core part of our team who is here to
 19 testify today.

20 **Q.** You didn't look to Dr. Marlow to provide this
 21 statistical expertise?

22 **A.** No.

23 **Q.** That was not why he was hired by you?

24 **A.** No, no. That would be totally incorrect.

25 **The statistical work in the early days, Dr. Marlow**

1 **from my personal observations, participated fully**
 2 **because -- because the way we did it, I just forget**
 3 **what page it was on (perusing). The way we**
 4 **approached it, Mr. Kessler, was as follows.**

5 **You know, the first question we asked just**
 6 **looking at the raw numbers, was whether or not there**
 7 **was a difference. If you just looked at the**
 8 **numbers, it looks like the Patriots' balls drop more**
 9 **than the Colts.**

10 **And then the question is, is that drop as a**
 11 **result of chance or something else? And so that was**
 12 **the question about statistical significance, just**
 13 **looking at the raw numbers. Because if they had**
 14 **told us it's just chance, maybe it's not there and**
 15 **you don't spend a lot more money.**

16 **And so that was kind of the first look-see**
 17 **just looking at the raw numbers. And I remember**
 18 **right after we hired Dr. Marlow, he was on the phone**
 19 **with me giving me his views of the statistics.**

20 **So that's why I say he was fairly active in**
 21 **those early discussions and throughout the entire**
 22 **representation. Dr. Marlow was, from my**
 23 **observation, very much into the statistics.**

24 **Q.** Mr. Wells, you came to learn from Exponent
 25 and Dr. Marlow that there were many unknowns that

1 could affect the application of the Ideal Gas Law to
 2 the footballs that were tested during the AFC
 3 Championship Game; is that fair?

4 **A.** I think the answer is yes. And let me
 5 explain why I'm hesitating, Mr. Kessler. The
 6 application of the Ideal Gas Law is, in and of
 7 itself is, it's kind of nuanced in the sense that
 8 the Ideal Gas Law is a theoretical concept that
 9 predicts the impact of temperature change on
 10 pressure.

11 **And it's a mathematical formula that you need**
 12 **a whole lot of things to be satisfied and in place**
 13 **for it to work. So that, the Ideal Gas Law was out**
 14 **there.**

15 **Q.** Let me ask you differently.

16 **A.** Okay.

17 **Q.** Let me ask you this way. You came to learn
 18 that no one ever recorded the precise time that each
 19 of the balls were tested at halftime, correct?

20 **A.** I didn't need the experts for that.

21 **Q.** You learned that?

22 **A.** I learned that from the interviews.

23 **Q.** You came to learn that no one recorded the
 24 temperature inside the clubhouse at the time that
 25 the balls were tested at halftime, correct?

1 **A.** Correct.

2 **Q.** You came to learn that no one even specified
 3 whether or not the -- wrote down and specified
 4 whether the Colts' balls were tested after or before
 5 the Patriots' balls were reinflated? It was
 6 uncertain about that, correct?

7 **A.** Correct.

8 **Q.** Okay. You came to learn that no one
 9 indicated whether the balls were wet or dry when
 10 they were tested?

11 **A.** Correct. I don't have any data.

12 **Q.** Right.

13 **A.** And again, I have different witnesses who
 14 have different recollections. But I don't have any
 15 written documentation about what people saw at that
 16 moment in time, other than the raw data.

17 **Q.** And at all the points I'm covering, if you
 18 have different witnesses, they have different
 19 recollections because that's why you wrote it was
 20 uncertain?

21 **A.** That's correct.

22 **Q.** Because the recollections were different?

23 **A.** That's correct. When I had sufficient --
 24 when I thought the evidence was sufficiently clear,
 25 we made a finding --

1 Q. Right.

2 A. -- or we stated this is the facts. When I
3 thought there was uncertainty and I wasn't willing
4 to make a finding, I stated with clarity that there
5 was uncertainty.

6 Q. So there was, I think you wrote in your
7 report that there was uncertainty about the time.
8 There was uncertainty about the temperature. There
9 was uncertainty about the order of the tests. There
10 was uncertainty about the wetness or dryness.

11 And you also came to learn all those factors
12 could affect a determination as to whether the
13 Patriots' measurements could have been due to
14 natural forces or not? You came to learn that,
15 correct?

16 A. Yeah. And, in fact, one of the things, we
17 have had a lot of testimony about it today was the
18 impact of timing within the locker room at halftime.
19 And just what Dr. Dean Snyder was discussing, but --
20 but when we first get into the case, we haven't
21 focused on that yet.

22 All these articles I'm getting at the
23 beginning of the case on the Ideal Gas Law are based
24 on the assumption that they measured the balls in
25 the warm locker room. They have taken them out to

1 the field where it's, like, 48 or 50 degrees. And
2 the story kind of ends.

3 Nobody is really focused yet that when they
4 came in at halftime and they brought the balls back
5 into the room, that when they came from the cold
6 back into the hot, the warmer room, the pressure
7 started to increase as they heated up. And really,
8 Exponent was the expert that really focused on that.

9 And that's why I discussed in such detail in
10 the report, because they are the ones that focused
11 on that issue which really no one, you know, to my
12 knowledge, had. And I wasn't even sensitive to it.

13 Q. And Mr. Wells, another point you came to as
14 being uncertainty, you wrote was whether or not when
15 the initial testing was done before the game,
16 whether that was done by the logo gauge or the
17 non-logo gauge, right? You concluded that was
18 uncertain?

19 A. No, no. I made an express finding and so did
20 the -- the experts made a finding and I -- and when
21 I say "I," I mean collective "I," my team, we made
22 an express finding that the non-logo gauge is the
23 gauge that was used by Walt Anderson when he tested
24 the balls. That is an express finding in the
25 report.

1 Q. Now, Mr. Anderson was interviewed by you,
2 correct?

3 A. Yes, sir.

4 Q. And he said his best recollection was that it
5 was the logo gauge, correct?

6 A. That's absolutely correct.

7 Q. So you have decided to conclude something
8 opposite to the best recollection of the only
9 witness you have as to which gauge was used, right?

10 A. Well, no. When you say "the only witness, I
11 have three witnesses as to whether the ball started.
12 Because that's the issue. Let's talk about the --
13 let's forget people for a minute. The issue is
14 where did the balls start in the locker room before
15 they went outside?

16 Because what we are trying to measure, we are
17 trying to measure the beginning pressure from where
18 they started in the locker room pre-game, and then
19 the balls go outside. They deflate with the cold.
20 Then they come back into the room at halftime and
21 they start to slowly rise.

22 And those measurements that Mr. Prioleau and
23 Mr. Blakeman took, now you are trying to compare
24 what was the starting psi and where was it at
25 halftime? So that's the exercise, okay. So the

1 question, the relevancy of non-logo, logo, is really
2 to ask your question, where did the balls start?

3 Now, the evidence we have is that the
4 Patriots were emphatic with us that they set their
5 balls at 12.5 or 12.6. That testimony came from
6 Mr. Jastremski and it also came from Mr. Brady. Our
7 balls are coming in at 12.5 or 12.6. So that's the
8 Patriots. So I assume for the AFC Championship
9 Game, the Patriots are set. They know where they
10 are setting their balls. They have told me they are
11 12.5, 12.6.

12 We then go interview the Colts. The Colts
13 say their balls are at 13, maybe 12.95, maybe 13.1,
14 but that's their number. But they are 13. And they
15 are emphatic. You have two witnesses, the Colts at
16 13, Patriots at 12.5. And let's just forget Walt
17 Anderson existed. If he disappeared from the face
18 of the earth, I would have written a report that
19 said these balls started at 12.5 and 13 because
20 that's what the Patriots told me and that's what the
21 Colts told me.

22 Now, what happened next is Walt Anderson
23 actually gauged the balls. And Walt Anderson said
24 when he gauged the balls, they measured Patriots
25 12.5, may have been a couple, two exceptions, and

1 **Colts at 13. So Walt Anderson without talking to**
 2 **the Patriots, talking to the Colts, has said what he**
 3 **observed is just what the Patriots said and what the**
 4 **Colts said.**

5 **Now, how do you get to what gauge he used?**
 6 **The only way Walt Anderson could get to 12.5 for the**
 7 **Patriots and 13 for the Colts is if he used the**
 8 **non-logo gauge. And that is because the logo gauge**
 9 **always reads .3 to .4 higher. It is consistent.**

10 **That gauge, it may read high, but we tested**
 11 **it hundreds of times. It always reads .3 to .4.**
 12 **It's like I tell people I have a scale in my house.**

13 **Q.** Mr. Wells, can I break in to ask a question
 14 here. I know you would like to make a speech about
 15 your report, but I would like to ask a question.

16 MR. LEVY: Why don't we let him finish.

17 MR. KESSLER: It wasn't even the question.

18 MR. NASH: It was.

19 **A. I have a scale in my house. I have two**
 20 **scales. One scale reads the same as the calibrated**
 21 **scale at the gym. I know that's the perfect scale.**
 22 **I have another scale that always reads three pounds**
 23 **lighter. I love that scale. But that scale is as**
 24 **calibrated as the good one.**

25 **You know why? It's consistently three pounds**

1 **under. That's how -- that's how the logo gauge is.**
 2 **It always is reading high. And the only way you**
 3 **could get those measurements where Walt says he saw**
 4 **just what the Patriots saw and what the Colts saw is**
 5 **with the non-logo gauge.**

6 **And that's why we made that finding. Now,**
 7 **maybe lightning could strike and both the Colts and**
 8 **the Patriots also had a gauge that just happened to**
 9 **be out of whack like the logo gauge. I rejected**
 10 **that.**

11 MR. LEVY: Why don't you ask another
 12 question.

13 **Q.** Okay, Mr. Wells, I know you have been in my
 14 shoes, okay.

15 **A. Okay.**

16 **Q.** Try to bear with me and answer my questions.

17 **A. I just haven't been in this chair. This is**
 18 **kind of interesting.**

19 MR. NASH: You asked for it.

20 **Q.** So my question is very specific. I am going
 21 to try to be very specific. You just testified that
 22 you never found the Patriots gauge, right? You now
 23 that?

24 **A. That is correct.**

25 **Q.** You never found the Colts gauge, correct?

1 **A. That it correct.**

2 **Q.** So as you are sitting here, you have no idea
 3 whether the Patriots and the Colts gauge would read
 4 exactly like the logo gauge or the non-logo gauge?
 5 You have no basis for knowing one way other the
 6 another?

7 **A. In terms of the actual gauge, you are**
 8 **absolutely correct. I had to make a judgment.**

9 **Q.** So bear with me.

10 **A. Okay.**

11 **Q.** If their gauges read like the logo gauges
 12 because they were older gauges that were given by
 13 Wilson and may have looked just like the logo gauge,
 14 then they might read like the logo gauge if that was
 15 true?

16 **A. That's what I mean if lightning were to**
 17 **strike and what you would have to have happen in**
 18 **terms of my analysis, you would have to have had**
 19 **both teams for that Championship Game had gauges**
 20 **that were .3 to .4 off and then that all flowed into**
 21 **Walt Anderson using the logo gauge which was .3 to**
 22 **.4 off.**

23 **And I don't think that happened and that's**
 24 **what I ruled. I think what I ruled is totally --**
 25 **not only do I think it's correct, I think it's**

1 **reasonable.**

2 **Q.** Now let's talk about what else is here to
 3 make lightning strike. The Patriots didn't tell
 4 you -- you mentioned you had three sources. The
 5 Patriots didn't say anything about what gauge
 6 Mr. Anderson used, right? They didn't know what
 7 gauge he used?

8 **A. Correct.**

9 **Q.** The Colts didn't tell you anything about what
 10 gauge he used, correct?

11 **A. Correct.**

12 **Q.** The only person who told you anything about
 13 which gauge he used is Mr. Anderson?

14 **A. Correct.**

15 **Q.** Who said his best recollection was it was the
 16 logo gauge, direct?

17 **A. Correct, but he also said it was possible he**
 18 **was mistaken.**

19 **Q.** As you know as a lawyer, witnesses will say
 20 anything is possible?

21 **A. Not Walt Anderson. You need to meet him.**
 22 **You should call him.**

23 **Q.** He maintained with you he really thought it
 24 was the logo gauge?

25 **A. But he also maintained that he could have**

1 **been wrong.**

2 **Q.** Now, let me direct your attention to NFL
3 Exhibit 14.

4 **A. I don't have it. I don't have it, sir.**

5 **Q.** You don't have that?

6 **A. Unless somebody gives it to me.**

7 MR. NASH: I will get you one.

8 MR. KESSLER: I'm sorry; I apologize.

9 THE WITNESS: This is the whole book?

10 MR. NASH: That's the binder. It's 14.

11 **A. I'm sorry; I didn't have it. Okay, go ahead.**

12 **Q.** Take a look at page 260.

13 **A. 260?**

14 **Q.** Do you recognize these were the notes that
15 were taken, this whole exhibit, at the various
16 testing at the halftime and the post-game the day of
17 the game? Do you recognize that that's what these
18 notes are?

19 **A. But just help me. Are these -- is this what
20 is taken at the end of the game?**

21 **Q.** Well, it's all of it. What's taken on
22 page --

23 **A. Page 260.**

24 **Q.** -- page 260, as you can see, has four and
25 four. So this would have been at the end of the

1 game?

2 **A. Okay, that's what I wanted clarification. I
3 agree these are the notes taken at the end of the
4 game.**

5 **Q.** Okay. And I will show you the other pages,
6 too.

7 **A. Okay, okay.**

8 **Q.** So at the top, it's written when it says,
9 "Ending number 1," okay.

10 **A. Right.**

11 **Q.** It says, "JJ gauge, red Wilson sticker."
12 Do you see that?

13 **A. Yes.**

14 **Q.** You know who JJ is?

15 **A. Yeah, Jastremski.**

16 **Q.** Okay. So somebody thought the gauge used by
17 Indianapolis was the same as JJ's gauge,
18 Mr. Jastremski's missing gauge, correct?

19 **A. Yeah. Let me tell you what I recollect
20 happening. These notes are made by Mr. Farley.
21 Mr. Farley wrote things on these documents after
22 they were signed. So the one I know -- I don't have
23 an express recollection about 260. The same
24 information, though, is -- he writes on 2 --**

25 **Q.** 56?

1 **A. -- 56.**

2 **Q.** Yes.

3 **A. And this is in the report. I just don't
4 think we addressed 260. But on 256, if you look at
5 it, it says, I think it says, "Belonged to JJ."
6 Do you see that?**

7 **Q.** Yes.

8 **A. He wrote that days later because Robyn
9 Glaser, a lawyer for the New England Patriots, told
10 him that that was JJ's gauge. And then he wrote it
11 there.**

12 **And when we questioned him, we said, Where
13 did this come from and when? He said, This is what
14 Ms. Glaser told me and we talked to her and she is
15 confused, so that's how it got there. It was after
16 the fact and it came from Robyn Glaser. And I think
17 we explained that in a footnote in the report, if my
18 recollection is correct.**

19 **Q.** Take a look at page -- take a look the
20 Exponent report for a second, which is NFLPA
21 Exhibit 8, if it's separate. Take a look at page
22 Roman IX, the Executive Summary.

23 It says in the second paragraph, "We have
24 been told by Paul, Weiss that there remains some
25 uncertainty as to which of the two gauges was used

1 prior to the game."

2 Do you see that?

3 **A. Yes.**

4 **Q.** Is that true?

5 **A. You know that is true that I told them that,
6 but ultimately, in the report itself, I make an
7 express finding that the non-logo gauge was used.
8 And, in fact, also in the Exponent report, they make
9 the finding.**

10 **But in terms of my role as the ultimate
11 finder of fact, I made a ruling that I believe is
12 absolutely correct based on the evidence that the
13 non-logo gauge is the one that was used by Walt
14 Anderson.**

15 **Q.** Well, when did you tell them there was some
16 uncertainty remaining?

17 **A. At the beginning of the case because I didn't
18 know, okay. We have uncertainty. They did one.
19 They go out and buy hundreds of gauges and they do
20 not only what they call exemplars, they take the
21 logo gauge and the non-logo gauge.**

22 **The right question to ask is whether both of
23 these gauges, do they work, are they reliable and
24 are they consistent? So they run the test on the
25 non-logo gauge and they find that that gauge is**

1 **almost perfectly calibrated. It works over hundreds**
 2 **of tests. It works close to what they call the**
 3 **master gauge. They have a master**
 4 **perfectly-calibrated gauge.**

5 **Q.** So your testimony, I just want to understand,
 6 is that the Exponent report was issued the same day
 7 as your report, correct?

8 **A. Yes, sir.**

9 **Q.** And despite that fact, they wrote on that day
 10 that there was some uncertainty still about which
 11 gauge was used. You are saying they were wrong?
 12 There was no longer any uncertainty --

13 **A. No, no, sir.**

14 **Q.** -- the date their report was issued?

15 **A. I said ultimately I made a finding in the**
 16 **report.**

17 **Q.** Did that resolve the uncertainty?

18 **A. Well, what I'm saying to the public, anybody**
 19 **that reads this report, you will see I say clearly,**
 20 **because I try to be transparent about what all the**
 21 **witnesses said. So I say Walt Anderson says it is**
 22 **his best recollection that he used the logo gauge.**

23 **We then did tests that showed that there is**
 24 **consistent uptick on the logo gauge of .3 to .4.**
 25 **The scientists, the Exponent people say they believe**

1 **based on their scientific tests that the non-logo**
 2 **gauge was used.**

3 **I have a ruling that says there's**
 4 **uncertainty, but I am making a ruling as a finder of**
 5 **fact, because that's my job as the judge, that it's**
 6 **more probable than not that the non-logo gauge was**
 7 **used by Walt Anderson. That is set forth in those**
 8 **words or substance in both my report and in the**
 9 **Exponent report.**

10 **Q.** Okay. So in your role as the judge, okay,
 11 you concluded that you were going to reject as a
 12 finder of fact Mr. Anderson's best recollection that
 13 he used the logo gauge, correct?

14 **A. Not only did I reject it, I first said this**
 15 **is what he says and this is why I am rejecting it.**
 16 **And I set it out so everybody can see it. Look,**
 17 **this is no different than a case where somebody has**
 18 **a recollection of X happening and then you play a**
 19 **tape and the tape says Y happened.**

20 **Now, the person could keep saying, well, darn**
 21 **it, I remember it was X. But the people are going**
 22 **to go with the tape. I went with the science and**
 23 **the logic that I had three data points. And that's**
 24 **what I based my decision on. It is a totally**
 25 **reasonable and, I think, correct decision.**

1 **Q.** Okay. I'm not going to quarrel with you
 2 right now about what you did. I just want to
 3 confirm, so in addition to Mr. Anderson, there are a
 4 number of other testimony from people who you
 5 rejected in your conclusions in this case, correct?

6 **A. You have to give me specifics.**

7 **Q.** I am going to give you specifics.

8 **A. Okay.**

9 **Q.** You rejected the testimony of Mr. Brady that
 10 he knew nothing about the ball deflation in the AFC
 11 Championship Game, right? You rejected that?

12 **A. I did reject it based on my assessment of his**
 13 **credibility and his refusal or decision not to give**
 14 **me what I requested in terms of responsive**
 15 **documents.**

16 **And that decision, so we can all be clear and**
 17 **I will say it to Mr. Brady, in my almost 40 years of**
 18 **practice, I think that was one of the most**
 19 **ill-advised decisions I have ever seen because it**
 20 **hurt how I viewed his credibility.**

21 **Q.** If he had given you that, you would have
 22 accepted his statement?

23 **A. I do not know. I can't go back in a time**
 24 **machine, but I will say this. It hurt my assessment**
 25 **of his credibility for him to begin his interview by**

1 **telling me he declined to give me the documents.**

2 **And I want to say this. At that time,**
 3 **neither his lawyer nor Mr. Brady gave me any reason**
 4 **other than to say, "We respectfully." They were**
 5 **respectful. They said, "We respectfully decline."**
 6 **There wasn't anything about the Union or it wasn't**
 7 **anything, This was what my lawyer told me and I am**
 8 **going to follow my lawyer's advice.**

9 **I was given no explanation other than, "We**
 10 **respectfully decline." And I did, I walked**
 11 **Mr. Brady through this request in front of his**
 12 **agents and lawyers. So I understood that he**
 13 **understood what I was asking for and they were**
 14 **declining.**

15 **Q.** Did his agents or lawyer ask you what the
 16 authority was for you asking for those types of
 17 information?

18 **A. No, that's not my recollection. They asked**
 19 **the authority for him to do the interview, I think.**

20 **Q.** You don't recall them asking for the
 21 authority to demand e-mails or cell phones or
 22 anything like that?

23 **A. My recollection, there's e-mail. The e-mail**
 24 **says what it says. But I thought the e-mails said**
 25 **authority to conduct the interview, but we ought to**

1 **grab the e-mail.**

2 **Q.** We will come back to that.

3 Let me just go through where I wanted to go,
4 other people you rejected. You rejected Mr. Brady
5 as we just said. You rejected Mr. Anderson. You
6 rejected Mr. Jastremski and Mr. McNally who denied
7 any knowledge of any deflation on the AFC
8 Championship Game, right? You rejected the two of
9 them?

10 **A. Yeah, because I did not think they were being**
11 **candid.**

12 **Q.** Okay. I just want to go through the various
13 people who you rejected. In addition, do you
14 recall, I think you already mentioned you rejected
15 what Farley wrote down that it was Mr. Jastremski's
16 gauge? You concluded that was not correct?

17 **A. No. Mr. Farley told me that he wrote it down**
18 **after the fact and Robyn Glaser confirmed that she**
19 **told that to Farley and it was just a mixup. It**
20 **wasn't a question of rejecting it.**

21 **It was a question of when I looked this, the**
22 **right question to ask was that statement put on**
23 **there contemporaneously with the other stuff? Was**
24 **it done on the night of January the 18th?**

25 **Well, Mr. Farley said no, he wrote that days**

DIRECT/WELLS/KESSLERPage 307

1 **later and he wrote it because Ms. Glazer said it.**

2 **So I actually accepted what Mr. Farley told me what**
3 **happened.**

4 **Q.** Do you recall that there was someone you
5 interviewed who was named Rita Callendar?

6 **A. I'm not sure. Somebody on the team may have.**

7 **Q.** She worked for Team Ops, a security guest
8 services company who worked for the Patriots.

9 **A. Oh, she was the person that stood outside one**
10 **of the locker rooms, right. Now I recall her. Go**
11 **ahead.**

12 **Q.** And Ms. Callendar told you that she estimated
13 about 50 percent of the time, Mr. McNally took the
14 balls out by himself to the field. Do you recall
15 that?

16 **A. Yes.**

17 **Q.** And you got the same testimony from Mr. Paul
18 Galanis who was stationed just outside the entrance
19 to the Patriots locker room who said it was routine
20 for McNally to walk to the field with the game balls
21 unaccompanied, correct?

22 **A. Correct.**

23 **Q.** And you rejected their interviews with you,
24 correct? You rejected that testimony as being
25 inaccurate?

1 **A. I don't think so. Could you show me where I**
2 **do that?**

3 **Q.** Well, didn't you conclude that it departed
4 from some established protocol for McNally to take
5 the balls by himself to the field and this was a
6 fact that you relied upon?

7 **A. My recollection is what we said is that based**
8 **on our interviews of the referees, that Mr. McNally**
9 **was either to take the balls out with the refs as**
10 **they walked out of the locker room or if he was**
11 **going by himself, he had to get permission first.**
12 **That is what my recollection of the report is.**

13 **And I don't think -- I don't think the report**
14 **has any rejection of their testimony. And if it**
15 **does, I will stand corrected if you show it to me.**

16 **Q.** So you do accept the fact that Mr. McNally
17 might routinely take the balls out by himself if he
18 had permission?

19 **A. I am just quarreling over the word**
20 **"routinely." What we ruled and found in the report**
21 **in terms of what was standard operating procedure**
22 **based on the referees and those are the people we**
23 **based it on, is that he had to get permission if he**
24 **was going out by himself.**

25 **Q.** But you are not saying you don't believe the

DIRECT/WELLS/KESSLERPage 309

1 people standing outside the door who said to them it
2 was routine or half the time that he would go with
3 the balls himself to the field?

4 **A. I didn't feel I needed to reach a conclusion**
5 **on that because there was no question that he had**
6 **not gotten permission that day and that he had**
7 **broken protocol. And I didn't need to drill down**
8 **and decide when he walked down the hall 50 percent**
9 **of the time by himself or was this person right or**
10 **that person right.**

11 **What I ruled was that he left without**
12 **permission and that he broke protocol and didn't**
13 **really turn on what those two individuals were**
14 **saying. So I didn't have to make a judgment about**
15 **them.**

16 **Q.** Let me ask you this. You indicated in your
17 report and at your press conference that you found
18 that there was no bias by NFL or by the NFL in how
19 it conducted the testing; is that correct?

20 **A. That is correct.**

21 **Q.** Okay. But you did not interview
22 Commissioner Goodell in connection with that,
23 correct?

24 **A. To my knowledge, as I sit here, I don't think**
25 **Commissioner Goodell had anything to do with the**

1 **testing.**

2 **Q.** Did you interview Jeff Pash in connection
3 with that, your co-lead investigator, whatever his
4 role was?

5 **A. To my knowledge -- you are asking me to do**
6 **with the testing?**

7 **Q.** Yes.

8 **A. To my knowledge, Mr. Pash had nothing to do**
9 **with the testing.**

10 **Q.** Did you interview Mr. Vincent?

11 **A. Yes. I interviewed all the people who were**
12 **there at the game.**

13 **Q.** Did you ask them to give you e-mails and text
14 messages, Mr. Vincent or the other NFL officials who
15 were there? Were they asked to give you e-mails and
16 text messages concerning the game-day activities on
17 what happened with the Colts?

18 **A. I do not think so.**

19 **Q.** Okay. Did you ask anyone else except
20 Mr. Brady, Mr. McNally and Mr. Jastremski and
21 Mr. Schoenfeld to give you text messages or e-mails
22 in connection with your investigation?

23 **A. I asked people at the Patriots and I'm not --**
24 **I'm not sure in terms of anybody else. I'm just not**
25 **sure as I sit here. But we can find out. I want**

1 **you to have the answer.**

2 **Q.** Did you ask anyone at the NFL for any of --
3 anyone who is employed by the NFL for e-mails or
4 text messages to your knowledge in connection with
5 this investigation?

6 **A. I do not recall. But again, we can find out.**
7 **I will get you an answer for the record.**

8 **Q.** With respect to the request made to
9 Mr. Brady --

10 **A. Yes, sir.**

11 **Q.** -- did you ever, yourself, determine whether
12 you had the authority under any applicable policy to
13 ask Mr. Brady to require him to turn over his
14 e-mails or text messages? Did you ever look
15 independently into that issue?

16 **A. I can tell you when I did the Miami Dolphins**
17 **investigation and I sat with either Ms. McPhee or**
18 **Ned Ehrlich, I asked people for their phones,**
19 **players, and they gave me the phones.**

20 **Q.** When you did the Miami Dolphins
21 investigation, was that under the policy that you
22 cited here on competitive integrity?

23 **A. No.**

24 **Q.** Okay. And had you ever done an investigation
25 previously under the privilege integrity policy?

1 **A. No, sir.**

2 **Q.** Okay. And would you agree with me that if
3 that policy was not directed to players, that policy
4 might not then impose any duties on players to
5 cooperate or not? You haven't looked into that,
6 right?

7 **A. I haven't looked into it, but what I will say**
8 **is Mr. Brady's agents at no time told me that was an**
9 **issue, because if they had told me it was an issue,**
10 **we would have had a discussion. Maybe I would have**
11 **called Ms. McPhee. Maybe I would have called**
12 **Mr. Ehrlich.**

13 **I would have called somebody because I will**
14 **tell you I did not -- I wanted -- I did not want**
15 **Mr. Brady in a position where I would have to write**
16 **that he didn't cooperate or when I interviewed**
17 **him -- everybody said the guy was a great guy.**
18 **Everybody said he was a great guy, great reputation.**

19 **And I wanted to interview him without this**
20 **cloud hanging over him, okay? And that's why I told**
21 **Mr. Yee, I will take your word. You do the search**
22 **and I will take your word.**

23 **Q.** Now, let me ask you this. When were you
24 retained in connection with this matter? Do you
25 remember when?

1 **A. Yeah, no, I know I was an hour away from**
2 **surgery. January 21st, they called me. I was ready**
3 **to get my knee operated on at 7:00 and they called**
4 **me, like, at 5:00 or 5:30.**

5 **Q.** Did you not contact Mr. Brady or his
6 representatives to make any kind of requests for
7 e-mails or phone records or text messages until
8 February 28; is that correct?

9 **A. That is correct. But I had given -- my**
10 **recollection, we had given it earlier to**
11 **Mr. Goldberg and then what Mr. Goldberg said --**
12 **Mr. Goldberg was --**

13 **Q.** Who is he?

14 **A. Mr. Goldberg is a lawyer for the Patriots who**
15 **sat in on every interview, including Mr. Brady's.**
16 **So I'm dealing with Mr. Goldberg. At some point,**
17 **Mr. Goldberg tells me -- and I think I have given**
18 **Mr. Goldberg at that time a written request for**
19 **Mr. Brady's phone stuff.**

20 **Mr. Goldberg says the agents are going to**
21 **deal with it. You got to deal with his agents**
22 **directly. He says, I'm out of it now. So then we**
23 **write -- we take what we had already given**
24 **Mr. Goldberg and we write it to Mr. Yee. So that's**
25 **what happened.**

1 **Q.** At no time did Mr. Goldberg ever tell you he
2 represented Tom Brady, did he?
3 **A.** Mr. Goldberg, if you talked to him, said he
4 represented everybody at the Patriots. That was how
5 he held himself out. But then he made himself
6 clear, with respect to Mr. Brady, I was going to
7 have to deal with the agents. I mean, he made that
8 clear.

9 **Q.** I just have some final questions for you,
10 Mr. Wells. Would you agree that there were no
11 established protocols that you found in the League
12 to collect all the data that you would have liked to
13 have to determine whether or not a drop in ball
14 pressure was due to natural forces or some
15 tampering? There was just no protocols to collect
16 that, right?

17 **A.** I told you I agree. What I found in
18 interviewing referees and just witnesses in general
19 is that there was no appreciation for the Ideal Gas
20 Law and the possible impact that that might have.
21 And so people didn't appreciate that if you measured
22 a ball in a hot locker room and then took it out to
23 a cold field, you have automatic drop.

24 **Now, the Patriots had figured that out, okay.**
25 **Mr. Jastremski had figured that out because he talks**

1 **about it in one of his texts. But again, that**
2 **didn't have anything to do in terms of procedures.**
3 **You are correct, there were no procedures.**

4 **Q.** Okay. And finally, there are many times when
5 the Exponent report indicates that they've heard
6 from Paul, Weiss that certain factors are unknown or
7 uncertain, correct?

8 **A.** Sure, yes.

9 **Q.** And you would agree with me the fact that
10 there were these unknowns is because there weren't
11 these procedures to provide that information?
12 Otherwise they would be certain, right?

13 **A.** That is -- that is absolutely correct. I
14 mean, sometimes people break procedures, but you are
15 right, I would have had data.

16 **Look, all of the things you said in terms of**
17 **your opening statement that we had unknowns, we were**
18 **aware of and we considered and we recognized that**
19 **one of the options was maybe you had so many**
20 **unknowns that you would have to say it's**
21 **inconclusive.**

22 **But we reached a different ruling and we**
23 **reached it in great part because those gauges did**
24 **work. See, look, the biggest thing when we started,**
25 **we wanted to know did the gauges work? When I say**

1 **did the gauges work, that so-called logo gauge that**
2 **reads .3 to .4, it was tested hundreds of times.**
3 **So you really know where it was. It wasn't**
4 **an erratic gauge. If you had a gauge that some days**
5 **read .7 over and other days it read .2 and other**
6 **days it read below, then you couldn't base anything**
7 **because that gauge was bouncing around.**

8 **But because the logo gauge was consistently**
9 **.3 to .4 over, and because the non-logo gauge was**
10 **almost perfectly calibrated, we knew we had good**
11 **gauges and that gave us the ability to do scientific**
12 **analysis and make conclusions that we felt were**
13 **reliable.**

14 **And one of the things we say in the report is**
15 **that the scientific analysis does not prove with,**
16 **quote, "absolute certainty" whether there was**
17 **tampering or not tampering. But the data ultimately**
18 **was sufficiently reliable that we felt comfortable**
19 **when we looked at the evidence in its totality.**

20 **And the totality of the evidence involved not**
21 **just the science. It involved Jim McNally calling**
22 **himself the deflator and saying he had not gone to**
23 **ESPN yet. And it involved the text message where**
24 **Mr. Jastremski says he talked to Mr. Brady. And**
25 **there's a reference to McNally must have a lot of**

1 **stress getting them done.**

2 **If those text messages did not exist, and all**
3 **we had was a break in protocol and he goes into the**
4 **bathroom and just the science, the result might very**
5 **well be totally different. But when you combine the**
6 **break in protocol, going into the bathroom, the text**
7 **messages and the science, we felt comfortable**
8 **reaching a judgment.**

9 **It was a totality of all of the evidence**
10 **analysis that gave us comfort in deciding it was**
11 **more probable than not. We looked at all of the**
12 **evidence together. And that's what juries do all**
13 **the time.**

14 **In most jury cases, each side will have an**
15 **expert. One expert will say X happened to a**
16 **reasonable degree of scientific certainty. The**
17 **other side will say, well, my expert says Y happened**
18 **to a reasonable degree of scientific certainty.**

19 **The jurors sit there and they make a judgment**
20 **about not just the science, but the whole case. And**
21 **the judge gives them the discretion as long as it's**
22 **not so unreliable that you can't make decisions.**
23 **And that's what we did in this case. And that's why**
24 **we reached the conclusions that we did and we think**
25 **the conclusions are right and we think they are**

1 **reasonable.**

2 MR. LEVY: Mr. Kessler, do you have anymore
3 questions?

4 MR. KESSLER: Just a couple more.

5 THE WITNESS: I'm sorry.

6 **Q.** Mr. Wells, did you make the decision not to
7 use the data from the post-game measurements?

8 **A.** Well, we actually made -- we actually write
9 in the report that, and there is a footnote. I just
10 forget what page it is.

11 **Q.** 73?

12 **A.** Okay. That data we decided not to use. And
13 the reason we decided not to use it is because we
14 didn't know where the four Colts' balls came from.
15 So they measured four Colts' balls at halftime.
16 They then bring balls back in at the end of the
17 game.

18 They measure four bolts balls. They have no
19 idea if the four Colts' balls they measured at the
20 end of the game were the four Colts' balls they
21 measured at halftime. So that was the Colts.

22 With respect to the Patriots' balls, when
23 they found out at halftime that the Patriots' balls
24 were all under regulation, they pumped the air into
25 them, but he didn't keep any record of how much air

1 he put in. So we didn't have any records if the
2 balls were 13.5 or what. So when the balls came
3 back in, we didn't have any point to start at.

4 **Q.** Didn't your report say they pumped them to
5 13?

6 **A.** I'm not sure. My recollection is they -- it
7 wasn't an exact number, but if that's what the
8 report says, I will go with the report.

9 **Q.** I think your report says, if someone could
10 check for me, I think the report says 13. So let's
11 assume that's what it says.

12 If they all were pumped to 13, if that's what
13 the official said, couldn't you use the four
14 Patriots' balls to test, then based on what had
15 happened versus the 13, because they weren't going
16 to be tampered with during that second half, right?
17 They could have been used?

18 **A.** And you may have, that's correct, if that's
19 what the report says. I will go with whatever the
20 report says.

21 **Q.** Okay. And then secondarily, did you make the
22 decision not to use the 12th ball that was tested
23 three times by the same official with the same
24 gauge?

25 **A.** No, it wasn't the same gauge. Al Riveron

1 **tested that ball and he tested it with two gauges.**

2 **And it's not in the report because we didn't**
3 **think -- at that point in time, the intercepted ball**
4 **because nobody knew whether or not the Colts might**
5 **have tampered with it or something, we didn't use**
6 **that as part of the analysis.**

7 **Later on after the fact, I don't know if it**
8 **was the Patriots or somebody said, well, you could**
9 **have used that ball as data that maybe the gauges**
10 **were off, what have you. But the fact is that**
11 **Riveron told us he tested it three times. I forget**
12 **what the numbers are. And he used both of the**
13 **gauges.**

14 **Q.** That would be in the interview reports if you
15 kept the interview reports?

16 **A.** That's my recollection.

17 **Q.** But you took notes of all that, either you or
18 your staff, right?

19 **A.** Yeah.

20 **Q.** They exist, those interview notes?

21 **A.** Yes, sir.

22 **Q.** Okay. And they contain a lot of information
23 that's not in this report, correct?

24 **A.** Oh, yeah, thousands of pages.

25 **Q.** Okay. Have you ever shared any of those

1 interview reports with counsel for the NFL --

2 **A.** No, sir.

3 **Q.** -- in this matter --

4 **A.** No, sir.

5 **Q.** -- to prepare for this?

6 **A.** Not a bit.

7 **Q.** It wasn't just shared with counsel for the
8 NFL today in front of me as I was looking across as
9 they were preparing to do examinations? None of
10 your interview notes have ever been shared with any
11 counsel for the NFL?

12 **A.** No, sir.

13 **Q.** Anyway, those reports exist, correct?

14 **A.** I said that.

15 **Q.** And you know that it's been ruled that we
16 can't get access to those reports in this case?

17 **A.** I understand that.

18 MR. KESSLER: I don't have any further
19 questions at this point, especially since I am sure
20 that I am bordering on the end of the time that you
21 have given us.

22 MR. LEVY: We are going to continue to be
23 flexible. Mr. Nash?

24 MR. NASH: Yes.

25 CROSS-EXAMINATION BY

1 MR. NASH:

2 **Q.** Mr. Wells, you were asked about your role and
3 your independence. And you gave some answers and I
4 just want to ask you a few questions about that.

5 First of all, what is your background in
6 conducting investigations like the one that you were
7 retained to conduct here?

8 **A. Well, within the sports area, I've done four**
9 **investigations. I have done investigations for the**
10 **NFL with the Miami Dolphins. I did this**
11 **investigation with Deflategate.**

12 **I did the investigation for the NBA Players**
13 **Association with respect to the practices of former**
14 **Executive Director Billy Hunter. I did the**
15 **investigation for the University of Syracuse Board**
16 **of Trustees with respect to whether Assistant**
17 **Basketball Coach Bernie Fine, their allegations of**
18 **sexual misconduct. So those are the big four in**
19 **terms of sports areas.**

20 **Q.** And outside the sports area?

21 **A. I have been involved in other investigations**
22 **for private entities.**

23 **Q.** And what is your view of your role when you
24 are retained in these cases to be an independent
25 investigator?

1 **A. It is to do the best job that I can, to**
2 **collect the relevant facts, examine the facts and**
3 **then render a personal opinion as to how I see the**
4 **facts. And I will say one thing because Mr. Kessler**
5 **suggested somewhere is there a conflict between my**
6 **duty to zealously advocate, represent the client.**

7 **When I'm hired in the capacity of an**
8 **independent investigator, my very job in terms of**
9 **the representation I'm supposed to do zealously is**
10 **to be independent and look at the facts and give a**
11 **candid, objective opinion. That's what I'm supposed**
12 **to do under the ethics rules.**

13 **Q.** And is it fair to say that's what you did in
14 this matter?

15 **A. Yes, sir.**

16 **Q.** Is it correct that you were not given any
17 instructions as to reach any particular conclusion?

18 **A. None at all.**

19 **Q.** Would you have undertaken this role as the
20 investigator if that were the case?

21 **A. I would not. And if anybody tried to**
22 **interfere with it, I would quit.**

23 **Q.** Now, you were asked some questions, I think,
24 it came when you were being asked about your finding
25 about the logo versus the non-logo gauge.

1 **A. Yes, sir.**

2 **Q.** And I think you referred to yourself as the
3 finder of fact and the judge. Can you explain what
4 you meant by that when you say "judge" or you made a
5 ruling.

6 **A. Yeah. Look, my job was to investigate the**
7 **facts and then render a personal opinion. That's**
8 **what it is. It is an opinion. When a jury renders**
9 **a verdict, it's their opinion. My job, and it's my**
10 **team. This decision, the rulings in the report,**
11 **though they call it the Wells report, were unanimous**
12 **for myself and Mr. Reisner and Brad Karp, the**
13 **partners on the team.**

14 **This was our collective judgment and our**
15 **personal opinion based on the standard of proof.**
16 **And the standard of proof in an NFL investigation of**
17 **this kind is the preponderance of the evidence. I**
18 **mean, I have caught criticism because I used the**
19 **words "more probable than not." And people act**
20 **like, is that wishy-washy?**

21 **It's not wishy-washy. That's the standard of**
22 **proof that applies to most civil cases in the United**
23 **States. And the NFL has made a decision to adopt**
24 **that standard. In terms of the levels of proof,**
25 **there are three levels. The highest is beyond a**

1 **reasonable doubt. The middle one is clear and**
2 **convincing, which applies in fraud cases.**

3 **But the predominant standard in most civil**
4 **jury trials in the United States is preponderance of**
5 **the evidence, which means more probable than not.**

6 **And when I wrote my conclusions in terms of**
7 **"more probable than not," I did it very**
8 **purposefully, because I did not want any readers to**
9 **think that I had perhaps made a finding of liability**
10 **beyond a reasonable doubt or by clear and convincing**
11 **evidence.**

12 **I wanted people to know this was the standard**
13 **under the NFL rules and that's the standard I was**
14 **making my ruling on. So I was doing it so people**
15 **wouldn't get confused and think I had used some**
16 **higher, higher standard.**

17 **Q.** You were asked about your interview
18 practices. You interviewed a lot of witnesses in
19 this matter?

20 **A. Yes.**

21 **Q.** Other than what's in the report, did you
22 interview any witnesses who told that you Mr. Brady
23 was not aware or did not in any way know about the
24 activities of Mr. Jastremski and Mr. McNally, that
25 you didn't include in the report?

1 **A. No. I mean, just, I want to be clear. Look,**
 2 **Mr. Brady denied any involvement. Mr. Jastremski**
 3 **and Mr. McNally denied any involvement or that**
 4 **anything happened, including with respect to their**
 5 **knowledge of Mr. Brady.**

6 **Coach Belichick said he had talked to**
 7 **Mr. Brady and that Mr. Brady had denied doing**
 8 **anything, and I think Coach Belichick said he**
 9 **believed him. I think those are the only witnesses**
 10 **who said something about Mr. Brady. And that's all**
 11 **in the report; I believe so.**

12 **Q. Now, getting back again to your role as the**
 13 **finder of fact, was it your role and your**
 14 **understanding to make any findings or conclusions**
 15 **about what discipline should be imposed on Mr. Brady**
 16 **or whether he engaged in conduct detrimental?**

17 **A. No, sir.**

18 **Q. You have been asked some questions about**
 19 **Exponent, and I want to -- you were here when**
 20 **Dean Snyder testified earlier, right?**

21 **A. Yes.**

22 **Q. If you could go to the Exponent report, IX,**
 23 **page IX, the Executive Summary.**

24 **A. Okay.**

25 **Q. And at the bottom of that page, there is a**

1 paragraph that, there is a "1" and a "2." Can you
 2 explain your understanding of what -- how Exponent
 3 approached this assignment?

4 **A. Yes. The last paragraph on page Roman**
 5 **numeral IX reads, "As noted, Paul, Weiss retained**
 6 **Exponent to provide scientific and analytical**
 7 **support for its investigation and help determine**
 8 **based on the available data whether it is likely**
 9 **that there had or had not been tampering with the**
 10 **Patriots footballs. Specifically, Exponent**
 11 **conducted a science- and engineering-based**
 12 **investigation to, (1), analyze the data collected at**
 13 **halftime, particularly to determine whether the**
 14 **difference in the decrease in pressure exhibited by**
 15 **the footballs of the two teams was statistically**
 16 **significant, and (2), identify and evaluate any**
 17 **physical or environmental factors present on the day**
 18 **of the AFC Championship Game that might account for**
 19 **the difference in the magnitude of the reduction in**
 20 **air pressure between the footballs of the two teams**
 21 **measured at halftime."**

22 **And what that paragraph says is that we**
 23 **proceeded in a sequential fashion. The first issue**
 24 **that was asked was whether or not there was a**
 25 **statistically significant difference between this**

1 **delta that we recognized between the Patriots' balls**
 2 **and the Colts' balls, because if it was just by**
 3 **chance, then we didn't need to go out and do all of**
 4 **these experiments to figure out what might have**
 5 **caused a difference, because it was just chance.**

6 **And as to what they looked at first was the**
 7 **question of statistical significance, they**
 8 **determined that it was. And then they moved to**
 9 **trying to figure out whether it could be explained**
 10 **by other factors.**

11 **So we did all these experiments out in**
 12 **Arizona pounding the football, seeing if rubbing**
 13 **caused problems, seeing how you measure the ball**
 14 **sticking a needle in it a bunch of times, could that**
 15 **let the air out. And then they did what they called**
 16 **the timing -- what's the word?**

17 **Q. Transient?**

18 **A. The transient test. And what they did, they**
 19 **developed a model to try to figure out how timing**
 20 **impacts the measurements. So they built, you know,**
 21 **they actually developed a model and then after they**
 22 **developed that model, then they looked at game-day**
 23 **simulations.**

24 **So, you know, this issue of timing that**
 25 **Professor Snyder talked about, I know he said it**

1 **wasn't in the model. I don't know whether that's**
 2 **right or wrong. The experts can testify to that.**
 3 **But the way we approached it was first statistical**
 4 **significance and then we did the tertiary studies**
 5 **and we did the game-day stimulations, in addition to**
 6 **all these other studies, because the Patriots --**
 7 **Patriots had all sorts of ideas what might cause**
 8 **this.**

9 **Okay, Mr. Goldberg was writing me e-mails.**
 10 **You know, maybe it was the pounding. Maybe it was**
 11 **the wetness. Everything we got from Mr. Goldberg we**
 12 **sent out to Exponent and to Mr. Marlow, okay. If**
 13 **they raised something, we tried to go down that**
 14 **rabbit hole.**

15 **We spent a ton of money, a ton of money**
 16 **trying to understand what might have caused it,**
 17 **other than tampering. And only the experts ruled**
 18 **that they couldn't get the numbers to match. And**
 19 **they didn't rule that the science absolutely shows**
 20 **there was tampering.**

21 **They said here's the data. Now, we as the**
 22 **fact finder, Mr. Reisner and I, really, and Mr. Karp**
 23 **had to make a decision. Okay, but we looked at**
 24 **everything as a whole, which is how jurors make**
 25 **decisions every day.**

1 Q. Did you consider -- you heard something about
2 the AEI report. Are you familiar with that?

3 A. Yes.

4 Q. And I think was it Dr. MacKinnon's report?

5 A. Look. To my knowledge when the report first
6 came out, the New York Times and the guy that writes
7 the 538 column was one of the most respected
8 statisticians in the world. He wrote a column
9 praising the science in this report.

10 And he went out and interviewed other
11 scientists and they praised the science done by
12 Exponent and Dr. Marlow. Following that, the
13 Patriots issued a rebuttal that contained a
14 three-page letter from a Dr. MacKinnon who is a
15 Nobel Peace Prize winner in chemistry.

16 It's not a physicist or a statistician. And
17 he took issue with some of the findings in the
18 report. And then an entity called AEI issued a
19 report in an op-ed in the New York Times and then
20 Dr. Snyder had his PowerPoint that we got last week.

21 But with respect to all three of those
22 reports, I went to Dr. Marlow and I went to the
23 people at Exponent and I told them I wanted them to
24 review each of those reports criticizing their work.
25 I wanted to know did those reports change their

1 findings and conclusions in any way?

2 Did it undermine their report? Did it make
3 them feel that they got it wrong? And both
4 Dr. Marlow and the people at Exponent told me they
5 reviewed each of those reports, that each of those
6 reports were flawed and failed to show an
7 understanding of what they had done and that their
8 conclusions had not changed in any way, shape or
9 form.

10 And that's what I did and that's what -- and
11 they are going to testify here so Mr. Kessler can
12 hear it and question them.

13 Q. I just want to ask you a few questions about
14 the requests that you and your team made to
15 Mr. Brady for texts and phone records.

16 A. Sure.

17 Q. And I think if I could get you to look at the
18 binder, let me start with Exhibit -- it's NFL
19 Exhibit 61.

20 A. Okay.

21 Q. Why don't you just tell us what this is. Is
22 this the request that was made to Mr. Brady's
23 counsel?

24 A. Yes, okay. In fact, it says, the first
25 sentence says, to Steve, "In advance of our upcoming

1 review of Tom Brady, we wanted to make sure you are
2 aware of our prior requests communicated through the
3 Patriots for Tom's relevant documents and
4 communications."

5 So that e-mail to the agent begins by saying,
6 We had previously asked the Patriots for the
7 materials. Now, as I said, my recollection is the
8 Patriots later came back, once the Patriots -- once
9 the agents were involved, and said to us, you got to
10 go through the agents.

11 But this confirms my recollection that we
12 went, we started with the Patriots. And what we
13 then did was basically redraft what we had sent to
14 Mr. Goldberg. And so that letter sets forth and
15 it's dated February 28, 2015, what we wanted.

16 We wanted two buckets of information. We
17 wanted him to take the phone, look at the text
18 messages, e-mails, run the search terms that we set
19 forth and give us any communications with anybody
20 about deflation or inflation. So if Mr. Brady had
21 talked to an assistant coach or talked to the
22 second-team quarterback about these issues, we would
23 get that material.

24 We then asked him for all communications
25 regardless of subject matter, I think, between

1 Mr. Jastremski and McNally, regardless of -- and
2 Schoenfeld, regardless of the search terms. So we
3 wanted two buckets of information. And I know, I
4 didn't get -- okay, I will stop.

5 Q. Yeah. So why don't you turn to the next
6 Exhibit 70, because I think I can represent if you
7 go to the third page of that exhibit, at the bottom,
8 it's 001584.

9 And there is an e-mail to you from Donald Yee
10 who I believe is Mr. Brady's agent. And there is a
11 reference to, I think, Exhibit 69, the request that
12 was made on February 28th; is that correct?

13 A. This is page 1584?

14 Q. Yes, page 1584, you will see at the bottom
15 there is an e-mail.

16 A. Yeah. Now, this e-mail is from Mr. Yee to
17 me. It is dated March 2nd. It says, "Dear
18 Mr. Wells, nice to meet you."

19 Then he says, "On Saturday, February 28th,
20 Mr. Burns at your office sent an e-mail to Mr. Dubin
21 requesting that we, on behalf of our client, request
22 a search of his text and e-mail communications dated
23 from September 1, 2014 to present. We have
24 considered this request. However, we respectfully
25 decline."

1 I want to say that's -- there is no statement
2 as to why they are declining. They give us no
3 information. They say, "We decline."

4 Now, the next paragraph is important because
5 it's something Mr. Kessler said. The next paragraph
6 reads, "On another note, we understand that you
7 would like to speak with our client in person about
8 the past season's AFC Championship Game. Prior to
9 confirming a time and date for such a discussion, we
10 must ask with all due respect what is the precise
11 basis for this proposed discussion? In our role as
12 NFLPA certified contract advisors, we are obligated
13 by the NFLPA agent regulations to be sensitive to
14 collective bargaining issues, particularly if those
15 issues may implicate player discipline matters."

16 So that's what they asked me. They didn't
17 ask me at any time about authority for the phone.
18 They had already turned me down in the prior
19 paragraph about the phone information. They were
20 asking me did I even have any right to talk to
21 Mr. Brady? And they wanted me to give -- to respond
22 to that.

23 And I sent them an e-mail telling them why I
24 wanted to talk to him. But there was never any
25 discussion directed to me or anybody on my team

1 about not giving us the phone because of some
2 concerns about the Union.

3 In fact, to my recollection, you know, I know
4 the Union was not permitted even to attend the
5 interview, whereas they had Mr. Ned Ehrlich from the
6 NFLPA was there at Foxborough that day. And we
7 interviewed the kicker Gostkowski and Mr. Ehrlich
8 did that interview, but Mr. Brady wouldn't let the
9 Union even sit in on his interview.

10 Q. So I notice in Exhibit 70, the response you
11 received about the request for Mr. Burns is one
12 line. It says, "We have considered this request.
13 However, we respectfully decline."

14 A. Right.

15 Q. Did Mr. Brady or his agents give you any
16 other reason for that, for not giving you the texts?

17 A. No, at no time. Then what happens if you go,
18 stay with the e-mail chain, so that's March 2nd.
19 Then March 3rd, I write back, and I respond to the
20 request why I think I want to -- why I want to
21 interview him.

22 And then I say, "Finally, we encourage you to
23 reconsider your decision to decline our request for
24 relevant e-mails, text messages and other material.
25 Our request is narrowly tailored to the subject of

1 our investigation and we would rely on you to
2 perform the requested searches and produce only
3 responsive material. We are hopeful that you will
4 reconsider our request."

5 So they have turned me down. I have now the
6 next day I have written back and I said please
7 reconsider. And then when they came to the
8 interview on March 6th, I asked them had they
9 reconsidered and they said, "We respectfully
10 decline." And they did not give me any reason.

11 And then I repeated the whole request in
12 front of Mr. Brady, because I did not want Mr. Brady
13 to be in a spot where later on he might say he
14 didn't understand what we were asking for.

15 Q. When you said you repeated it, you are
16 talking about the March 6th interview?

17 A. The request what I asked for, I made clear I
18 didn't want to take access to your phone. Mr. Yee
19 can do it. I did not, as Mr. Kessler said -- I want
20 to be clear -- I did not tell Mr. Brady at any time
21 that he would be subject to punishment for not
22 giving -- not turning over the documents. I did not
23 say anything like that.

24 Q. Did Mr. Brady or his representatives at any
25 time tell you that they couldn't give you any of the

1 texts because the phone had been destroyed?

2 A. No statements of that nature were made in any
3 respect.

4 Q. If you would look at NFL Exhibit 96, this is
5 a June 18, 2015 letter sent to Commissioner Goodell
6 by Mr. Yee. I just want to draw your attention. In
7 this letter, they talk about information that was
8 now being provided regarding Mr. Brady's phone.

9 And it says in the second paragraph, "Please
10 note that in producing the cell phone and e-mail
11 information, we have followed, in fact, we have gone
12 further than the specific requests set forth in
13 Wells's original electronic data request of February
14 28th made to us."

15 Do you agree with that statement, Mr. Wells?

16 A. Well, I know, it is my understanding, I want
17 to qualify, I haven't studied this, but it is my
18 understanding that they didn't do any searches for
19 the text messages for people other than Jastremski,
20 Schoenfeld and McNally. So they didn't do that
21 first big bucket I wanted that would have touched
22 all people in terms of the search terms.

23 And in terms of the text messages that they
24 produced, to my understanding, and I didn't look
25 through every page because the thing is real thick,

1 like, 1,500 pages or something, there is no text
 2 message -- there's not one content. When I say a
 3 text message, I mean what did somebody say?
 4 They have phone bills that say on X date
 5 there was a text message, but there is no content.
 6 So that's like looking at a running log that said
 7 you sent an e-mail but you don't have the content.
 8 So I was looking for the content.

9 Though, if Mr. Yee had come in and explained
 10 it to me -- look, I was trying to work with them.
 11 And so if he had explained, you know, we threw the
 12 phones away or whatever, you know, we would have
 13 talked about it. I did not want him in the position
 14 of not cooperating. I didn't want it for him. I
 15 didn't want it for me.

16 Not only did it hurt him in terms of how we
 17 evaluated his credibility, but it put us in a hell
 18 of a spot because you have a person with this
 19 exemplary record and has done all these good things
 20 that people are saying, and yet they are conducting
 21 themselves in a fashion that suggests they are
 22 hiding something and may be guilty and not being
 23 forthcoming.

24 So it was really hard to give them credit for
 25 the good stuff when he's basically looking you in

1 I wouldn't have had any hesitation to go back and
 2 look for any e-mails, but I didn't see it.
 3 The problem with the testing that
 4 Mr. Kessler, you know, rightly pointed out, it
 5 doesn't have to do with bias. I had no records.
 6 People didn't record things at the front end.
 7 Mr. Anderson, he wasn't biased against anybody, but
 8 he didn't write things down. That was real.

9 And, you know, there were issues in terms of
 10 record-keeping that I didn't have. But I didn't
 11 have record-keeping because of bias or somebody I
 12 felt was out to get the Patriots. The problem was,
 13 as he said, Mr. Kessler said, there weren't
 14 procedures.

15 MR. LEVY: Mr. Nash, do you have any
 16 questions?

17 MR. NASH: No, I don't.

18 MR. KESSLER: I have a few.

19 REDIRECT EXAMINATION BY

20 MR. KESSLER:

21 Q. Mr. Wells, you had an interview with the
 22 press after your report came out, correct?

23 A. Yes, sir.

24 Q. And according to the transcript that's
 25 published, you said the following, Mr. Brady, the

1 the face and saying, I'm not going to give you my
 2 phone.

3 But like I said, it not only hurt Mr. Brady,
 4 it hurt the investigation because it put us in a
 5 position we didn't want to be in because we wanted
 6 to be able to listen to him and evaluate his
 7 credibility without this cloud. That's why I kept
 8 saying, you know, reconsider. Give me -- I will
 9 take your word for it.

10 Q. The only other question I had is: You were
 11 asked about whether you had requested other, either
 12 e-mails or texts or other documents from anyone at
 13 the NFL; is it correct that you were provided with a
 14 number of documents from the NFL for your
 15 investigation?

16 A. Yeah, yeah, I was provided a huge number.
 17 And I just don't recollect as I sit here if we went
 18 through anybody's e-mails because the question
 19 Mr. Kessler asked me about was in terms of bias and
 20 with the testing.

21 And what I found in terms of the testing, I
 22 didn't see any bias, so I didn't see any need to
 23 have to go back and look at e-mails for something I
 24 didn't see. If I had seen something in terms of
 25 bias being exhibited during the testing at halftime,

1 report set forth, he came to the interview. "He
 2 answered every question I put to him. He did not
 3 refuse to answer any questions in terms of the back
 4 and forth between Mr. Brady and my team. He was
 5 totally cooperative."

6 Did you make those statements?

7 A. Absolutely, absolutely.

8 Q. And those are truthful statements, correct?

9 A. Yes, sir.

10 Q. Now, with respect to the issue of producing
 11 e-mails or texts, you asked Mr. Gostkowski to
 12 produce those things, correct?

13 A. We did.

14 Q. Again, did he produce them?

15 A. No, because we had decided that he wasn't
 16 that important a witness, and so we backed off. So
 17 what happened, I didn't resend. I didn't press
 18 because he just wasn't that important a witness.

19 Q. But his first response was that he declined?

20 A. Correct, he declined after Mr. Brady
 21 declined, but that is correct.

22 Q. He also declined?

23 A. Correct.

24 Q. To your knowledge, has Mr. Gostkowski been
 25 subject to any discipline for not cooperating with

1 your request?

2 **A. To my knowledge, as I said, I did not press**
3 **the issue.**

4 **Q.** Finally, you mentioned I think you had
5 Exponent test all these things and it cost a ton of
6 money or something like that?

7 **A. It's true.**

8 **Q.** How many millions was given to Exponent and
9 to Dr. Marlow apart from what you were paid in this
10 case, do you know, roughly?

11 **A. Can I? Exponent was 600,000 and I'm not sure**
12 **Marlow.**

13 **Q.** An additional amount for Dr. Marlow?

14 **A. Yes, sir.**

15 MR. KESSLER: I don't have any further
16 questions of you right now. Thank you.

17 MR. LEVY: Jeffrey, who is your next witness?

18 MR. KESSLER: Let me confer. So here is the
19 issue in light of the timing and everything else,
20 and I don't know what you want to do. You are going
21 to call Exponent's people; is that correct?

22 MR. NASH: If you are done.

23 MR. KESSLER: Well, here's the issue. Okay.

24 If you weren't going to call any Exponent people,
25 then I would proceed to probably call Dr. Marlow

1 We have had this issue back and forth and we propose
2 that there not be confidentiality in this matter and
3 the NFL said they wanted confidentiality and we
4 agreed to something and it was there.

5 I would like to propose on behalf of the
6 Union that we can release this transcript of this
7 today. I would like the NFL to think about that.
8 That's our proposal. Despite that, I'm not talking
9 about any of the underlying things, but at least the
10 transcript.

11 I think there is a great public interest in
12 this and in the interest of transparency, that would
13 be something that we would like to see done. So I
14 will submit my proposal for the NFL to consider as
15 to whether that's possible or not.

16 MR. LEVY: Pending the agreement, the
17 transcript is confidential.

18 MR. NASH: Yes.

19 MR. KESSLER: Well, we already have that
20 agreement, which is why I have to make this
21 proposal --

22 MR. NASH: Yes, we have that agreement.

23 MR. KESSLER: -- in order to see if the NFL
24 would agree to that.

25 MR. LEVY: Five minutes.

1 first as I said I would because --

2 MR. NASH: You can do that.

3 MR. KESSLER: No, but I'm just saying, if you
4 are going to call the Exponent people anyway, then
5 in light of the time and the hour, I would be happy
6 to proceed if this would be suitable to the
7 Commissioner, because it may save some time to have
8 them present, the Exponent people, cross-examine
9 them and then maybe I will conclude I don't have to
10 call Dr. Marlow. In other words, I would only be
11 calling him if I'm uncertain as to whether anybody
12 is going to testify for them.

13 MR. NASH: That's fine.

14 MR. LEVY: That's fine.

15 MR. KESSLER: So why don't we proceed next
16 with your calling the Exponent people. We will do
17 the cross-examination and then after that, I will
18 let you know whether I feel it's still necessary to
19 call Dr. Marlow or not at that point.

20 MR. LEVY: Agreed. Five-minute break.

21 MR. KESSLER: One other thing on the
22 record --

23 MR. LEVY: Is there anybody else?

24 MR. KESSLER: No, but one other thing on the
25 record, I would like the NFL to think about this:

1 (Recess taken 5:54 p.m. to 6:04 p.m.)

2 MR. REISNER: We call Dr. Robert Caligiuri.

3 **ROBERT CALIGIURI**, called as a
4 witness, having been first duly sworn by a Notary
5 Public of the State of New York, was examined and
6 testified as follows:

7 DIRECT EXAMINATION BY

8 MR. REISNER:

9 **Q.** Can you please state your name for the
10 record.

11 **A. Robert D. Caligiuri, and I will spell it for**
12 **you, C-A-L-I-G-I-U-R-I.**

13 **Q.** Dr. Caligiuri, by whom are you employed?

14 **A. I am employed by Exponent, Incorporated.**

15 **Q.** What is your title there?

16 **A. I am a group vice president and principal**
17 **engineer. Group vice president is an administrative**
18 **role. I am responsible for the company's core**
19 **engineering practices.**

20 **Q.** What kind of company is Exponent?

21 **A. Exponent is a scientific and engineering**
22 **consulting company that works for a wide variety of**
23 **clients to solve their technical scientific**
24 **problems, particularly, very significant ones.**

25 **Q.** Where is your office located?

1 **A. Our corporate headquarters are in Menlo Park,**
2 **California.**

3 **Q. And what kind of work does Exponent do?**

4 **A. Engineering work, scientific work, both in**
5 **the health arena, in the environmental arena,**
6 **solving problems, do some litigation support, yes,**
7 **all kinds of and types of engineering, problem**
8 **solving.**

9 **Q. And do you have any particular expertise in**
10 **terms of your own scientific and engineering focus?**

11 **A. My focus is on mechanical and materials**
12 **engineering. And I bring those disciplines to**
13 **basically find out what happened to things, to**
14 **determine root cause analyses, looking at a wide**
15 **variety of problems and particularly in consumer**
16 **products and other areas trying to figure out what's**
17 **going on here and use my material and mechanical**
18 **expertise.**

19 **Q. Can you very briefly describe your**
20 **educational background.**

21 **A. I have a Bachelor of Science degree in**
22 **mechanical engineering. I have a Master's and Ph.D.**
23 **of Material Science and Engineering from Stanford**
24 **University.**

25 **Q. Were there other members of the Exponent team**

1 who assisted you on this matter?

2 **A. There were a lot of people that worked on it.**

3 **Q. Can you just describe the principal members**
4 **of the team and their area of expertise.**

5 **A. Sure. It became very apparent after we**
6 **received the initial assignment from Paul, Weiss**
7 **that statistics is a part of this investigation. So**
8 **I went out and recruited Dr. Duane Steffey, who is a**
9 **Ph.D. statistician, who also was a professor of**
10 **statistics -- he's the director of our statistics**
11 **department -- and engaged him on that aspect of the**
12 **problem -- of the project.**

13 **I also reached out to Dr. John Pye. He is a**
14 **vice president of the firm and he's a Mechanical**
15 **Engineer Ph.D. from Stanford University. He's very**
16 **experimentally-oriented, does a lot of work for the**
17 **United States Government. And I engaged him to take**
18 **care of the experimental side of things.**

19 **Dr. Gabe Ganot is a Ph.D. material scientist**
20 **from Columbia University and I engaged him to do a**
21 **lot of different aspects of the project. Those are**
22 **the four key people on the project.**

23 **Q. What was Dr. Marlow's role in connection with**
24 **Exponent 's work?**

25 **A. I think Mr. Wells said it pretty well here,**

1 **he was working with us helping us doing some of the**
2 **statistics analysis, reviewing our work,**
3 **contributing to it, pointing out things, helping us**
4 **plan the direction that we needed to go. He was**
5 **very much involved in the project.**

6 **Q. At the outset of your work, what**
7 **instructions, if any, were you given by Mr. Wells**
8 **and the Paul, Weiss team about the role that**
9 **Exponent should play with respect to its work?**

10 **A. I think Mr. Wells said it pretty well, too.**
11 **He said we needed to consider ourselves**
12 **court-appointed experts, which brings a level of**
13 **independence. And I have actually served as that**
14 **before.**

15 **And at a very high level of independence and**
16 **viewing things from very, very objective -- so**
17 **objectivity and court-appointed independent expert,**
18 **were very much important to this investigation for**
19 **our role. It was also very clear that planning, the**
20 **methodology and the approach, was left to us, and**
21 **the scientific and technical aspect.**

22 **Q. Can you describe the assignment that you**
23 **received from Paul, Weiss.**

24 **A. I think Mr. Wells did that pretty well, too.**
25 **If we go to basically the paragraph he read, we were**

1 **retained to provide scientific and analytic support**
2 **in their investigation to help them determine**
3 **whether or not, based on available data, there may**
4 **have been tampering of the footballs by the**
5 **Patriots, and based on that, to do two very large**
6 **pieces of investigation.**

7 **One was to analyze the halftime data and**
8 **determine it's statistical significance; and two, to**
9 **perform experiments and review and analyze the**
10 **potential factors, usage, environmental, physical,**
11 **that could influence any difference in the pressure**
12 **drops that were measured.**

13 **Q. And can you describe in a little bit more**
14 **detail the analysis and testing performed by**
15 **Exponent.**

16 **A. The analysis, the statistical analysis?**

17 **Q. Start with the statistical analysis.**

18 **A. We took a look at, very carefully, at all the**
19 **game-day halftime measurements that were made,**
20 **analyzed them, put them through statistical models**
21 **as has been discussed here already, and to determine**
22 **is there anything there that supported it? Was it**
23 **worth looking at more? We ran that through very,**
24 **very careful examination of the halftime data.**

25 **The second thing we did was to look at the**

1 gauges. The gauges that collected the data, was
2 there something wrong with them? Were they messed
3 up? Were they not reliable? That was a factor that
4 would influence the observations that we made.

5 The third thing we then did was do a whole
6 series of experiments to evaluate the effects of
7 ball usage, rapid insertion, repeated insertion of
8 the needles into the balls, would they leak, all
9 sorts of things that people had actually mentioned
10 that could be contributing to the difference in the
11 pressure drops.

12 Q. Can I just stop you there for a moment? And
13 you have a copy of your report in front of you?

14 A. Yeah.

15 Q. Can you go to page XI, Roman XI of your
16 report. And number 6 on that page describes the
17 physical factors that were evaluated by Exponent?

18 A. Yes, it does.

19 Q. And can you describe those, please.

20 A. Sure. The first one I mentioned is the
21 impact of gaming. Someone had mentioned, I believe,
22 in prior testimony that the Patriots' balls were
23 used more than the Colts' balls, unfortunately for
24 the Colts, I guess, in the first half. So was there
25 a factor being used more that caused the pressure

1 inside to go down more relative to the Colts.

2 Q. And what did you do to test that?

3 A. Picture that made the rounds here of a
4 football being squished in a mechanical testing
5 machine. We took the football and we cycled it to
6 650 pounds to see if there was change or loss of
7 pressure in the ball.

8 Q. The next thing was, "The impact of repeated
9 insertions of an inflation needle into the
10 football."

11 What did you do to test that?

12 A. Basically took a bunch of footballs and
13 inserted a needle inside of it, and many, many
14 times, to see is there leaking around the gland?
15 Was there a change in the pressure over time with
16 multiple, multiple, multiple insertions?

17 Q. And next, "The natural leak rate and
18 permeability of properly-functioning footballs."

19 What did you do to test that?

20 A. Basically we took footballs apart and
21 measured the permeability to various materials
22 inside the football to leakage of air.

23 Q. And the other listed factors are additional
24 physical characters you tested, correct?

25 A. That's correct.

1 Q. What other testing did you perform as part of
2 your work?

3 A. The -- beyond these physical factors, there
4 were the environmental factors that we tested. And
5 those tests fell into two kind of buckets. One
6 bucket was the transient testing that's already been
7 referred to here. And transient testing means
8 monitoring. It is time-dependent, monitoring
9 something over time.

10 In this case, we took various footballs and
11 put a gauge in the football and took them from
12 various temperatures to various temperatures and
13 monitored the time, monitored the change in pressure
14 over time. That curve I believe that Mr. Snyder
15 showed was one of them that he generated to see what
16 is the effect of pressure on time, transient
17 analysis.

18 The second set of experiments that we did was
19 to try to, based on the review of the videotape, was
20 to try to simulate as best as we could with the
21 information we had to actually recreate the game
22 conditions on that game up to halftime.

23 We put balls in 48 degrees Fahrenheit for a
24 couple of hours, first in the locker room and then
25 in the field, simulated field. We used different

1 rooms at different temperatures to do that, brought
2 them out and measured their pressures and that sort
3 of stuff, tried to rub the footballs in the same way
4 trying to stimulate the actual conditions as best we
5 could.

6 Q. With respect to the transient experiments, I
7 want to direct your attention to page 41 of your
8 report.

9 A. Yeah.

10 Q. Can you describe what Figure 20 is.

11 A. Well, that's a set-up for the transient
12 experiment. This is an actual game-day football.
13 And you can see if you look at the top picture,
14 Figure 19 is the instrument we inserted inside the
15 football.

16 And you can see the Tygon tubing that comes
17 out to what is called a master gauge, which is a
18 gauge that measured pressure calibrated to a Natural
19 Institute of Standards standard of pressure to a
20 thousandth of a psi. That is how we measured
21 pressure.

22 Q. Can you describe again the purpose of the
23 transient experiments?

24 A. It was to look at the effect of the
25 temperature, external temperature, on the pressure

1 **inside a football as a function of time.**

2 **Q.** Dr. Caligiuri, based on the testing that you
3 described, did you reach conclusions?

4 **A.** Yes.

5 **Q.** Can you describe the key conclusions that you
6 reached based on your work.

7 **A.** You said "testing." Are you including some
8 of the statistical work, too?

9 **Q.** If you could just describe the key
10 conclusions reached based on your work.

11 **A.** Sure. I think the conclusion section of the
12 report says it pretty well, starting on page 64.
13 The first thing we did as has been discussed here is
14 we did a statistical analysis on the halftime data.

15 **And we looked at that data and we analyzed it**
16 **and it's been discussed here. And we concluded from**
17 **that based on the standard of five percent that the**
18 **halftime data had some statistical significance and**
19 **that it appears that the Patriots game balls**
20 **exhibited a greater pressure drop than the Colts'**
21 **balls, on average.**

22 **So the difference in magnitude between**
23 **pressure between the Patriots and the Colts as**
24 **measured at halftime was determined to be**
25 **statistically significant. So therefore, to us,**

1 **that warranted further investigation into what could**
2 **be causing it.**

3 **So the next thing we did was to look at the**
4 **gauges themselves and we tested the gauges, the logo**
5 **gauge and the non-logo gauge. We tested hundreds of**
6 **exemplar gauges we could get our hands on trying to**
7 **see are these gauges capable of measuring these**
8 **sorts of pressures.**

9 **Q.** And what were your conclusions and where are
10 they set forth on page 64?

11 **A.** Paragraph 3. It says, "The logo and non-logo
12 gauges appear to have worked reliably and
13 consistently on game day, and the difference in the
14 pressure drops between the teams was not caused by a
15 malfunction in either gauge."

16 **What we did notice in the testing was that**
17 **the so-called logo gauge read consistently, reliably**
18 **and repeatedly 0.3 to 0.4 psi higher. That's**
19 **already been discussed here today. But it would do**
20 **that every time. So it wasn't veering all over the**
21 **map. It was consistently in that range.**

22 **Q.** And directing your attention to paragraph 6
23 of your conclusions, what were your conclusions with
24 respect to the potential contributions to the
25 difference in the observed pressure drop with

1 respect to the physical factors tested?

2 **A.** The difference that we are seeing basically
3 usage really had no effect here. And as well as the
4 ball preparations methods, we went and prepared
5 balls the same way that the Patriots told us they
6 did it and the same way the Colts told us they did
7 it.

8 **So we prepared those balls and none of these**
9 **factors, these ones that I listed, were having any**
10 **effect on the difference of pressure inside the**
11 **balls between the Colts and the Patriots. They were**
12 **non-factors, so we excluded them from any sort of**
13 **conclusions that we made.**

14 **Q.** And directing your attention to the last
15 sentence of paragraph 6, does that pretty much sum
16 up your conclusions with respect to the impact of
17 the physical factors?

18 **A. (Reading): "None of the above physical**
19 **factors at the levels we understand were applicable**
20 **on game day were found to contribute in any material**
21 **way to changes in internal pressure of the footballs**
22 **and do not, therefore, explain the relative**
23 **difference in pressure drops measured by us."**

24 **Q.** And directing your attention to paragraph 9,
25 can you describe your conclusions with respect to

1 the transient experiments that you were conducting?

2 **A.** We did a series of transient experiments that
3 I told you about where we quantified the
4 time-dependent behavior of footballs and to
5 understand how such behavior might explain the
6 difference in the magnitude of the pressure drops.

7 **So we looked at the -- very much looked at**
8 **the effect of time here in our experiments, very,**
9 **very much so. And we concluded that the timing does**
10 **have an effect on the pressure, but the timing in**
11 **and of itself did not account for the pressure drops**
12 **that we saw.**

13 **So timing is affecting the pressures, but**
14 **that in and of itself is not contributing to the --**
15 **cannot account for the difference in the pressure**
16 **drops.**

17 **Q.** And does the last paragraph under Item 10
18 summarize your conclusions?

19 **A.** Yes.

20 **Q.** Can you read or summarize that into the
21 record.

22 **A. (Reading): "Within the range of game**
23 **conditions and circumstances most likely to have**
24 **occurred on game day based on information provided**
25 **to us by Paul, Weiss, including the timing of**

1 various events understood to have occurred in the
2 officials' locker room during halftime, we have
3 identified no combination of the environmental
4 factors listed above that could reconcile the
5 Patriots halftime measurements with both results
6 predicted by our transient experiments and the
7 measurements of the Colts' balls taken at game-day."

8 So environmental factors in and of itself
9 cannot account for the difference.

10 Q. Very briefly, can you describe the
11 conclusions reached based on your experimental game
12 day simulations.

13 A. Experimental simulations, again, failed to
14 account for the pressure drop difference between the
15 Colts and the Patriots. Those were experiments that
16 we tried to simulate the entire game day, and they
17 could not account for it.

18 And the game-day experiments also helped
19 validate the transient experiments at the time
20 because the data we collected from the game-day
21 simulations overlay the data collected from our
22 transient experiments, verifying that aspect of it.

23 Q. When you conducted the game-day simulations,
24 you actually used Colts' balls and Patriots' balls
25 that could be identified as having either been used

1 A. We did look at timing. We very much did so.
2 The statistical analysis we did up front was really
3 an intention to -- a gatekeeper to see if it made
4 sense to follow up with everything else. And we
5 concluded it was statistically significant. We did
6 all sorts of experiments looking at time, time
7 effects, time effects on pressure, all of those.

8 We absolutely looked at timing. When we saw
9 the effect of timing and when the balls were timed
10 out and measured, we then went back to the
11 statistical analysis as was discussed in Footnote 49
12 to our report. We went back and specifically put
13 the effect of time back into our model.

14 And to our -- I mean, it was interesting that
15 the statistical analysis said it wasn't a
16 significant effect, timing. Well, that seems kind
17 of counterintuitive there. When experiments are
18 saying timing is important, how could this analysis
19 say it wasn't?

20 Well, the reason is that the other factors,
21 the physical factors that came into play, like ball
22 wetness and dryness, differences in inflation
23 pressure to start with, were masking the timing
24 effect that you would have expected to see if it was
25 all just due to increase in pressure at the time.

1 in the AFC Championship Game or previously marked by
2 Walt Anderson, correct?

3 A. That's correct.

4 Q. And you ran those balls through simulated
5 events that basically replicated the conditions that
6 were understood to be present on game day, right?

7 A. That's correct.

8 Q. Now, you were here during the testimony of
9 Dean Snyder, correct?

10 A. Correct.

11 Q. And you heard Dean Snyder describe what he
12 described as his three key findings or criticisms
13 with respect to the Exponent report, correct?

14 A. Correct.

15 Q. I am referring to Exhibit 191 now. This is
16 NFLPA 191. What he describes as his first key
17 finding or criticism was, "Exponent's statistical
18 analysis of the difference of the average pressure
19 drops is wrong because it ignores timing."

20 Do you have a reaction or response to that
21 criticism?

22 A. Yes.

23 Q. What is your reaction or response?

24 A. It's totally unfounded criticism.

25 Q. Why?

1 So the reason you don't see a timing effect
2 that we concluded in the statistical analysis is
3 because it's being masked out by the variability in
4 the data due to these other effects.

5 Q. And with respect to Dean Snyder's key finding
6 or criticism 1, does that affect your views with
7 respect to the appropriateness of the work done by
8 Exponent or the conclusions reached by Exponent?

9 A. No.

10 Q. I want to direct your attention to key
11 finding number 2 or key criticism number 2
12 identified by Dean Snyder, which is, "Exponent
13 improperly draws conclusions based on the
14 variability in halftime pressure measurements
15 despite conceding that the variability is
16 statistically insignificant."

17 Do you have a reaction or response to that
18 criticism?

19 A. I believe that one is unfounded as well.

20 Q. And why do you believe it's unfounded?

21 A. Because it's comparison of apples and oranges
22 here. The statistical analysis we did up front is
23 correct. We concluded the variability, which means
24 the variation of the measurements as you look at the
25 data set, the average of that compared to the

1 average of variations, I will call it the average of
2 the mean between the two could not be determined to
3 be statistically significant.

4 So you couldn't say that the Patriots' balls,
5 based on that analysis, was more variable than the
6 variability in the Colts' balls, based on that
7 specific statistical analysis of that data.

8 We came to the conclusion that part of the
9 contributing factors, there were only four Colts'
10 balls that were measured, as opposed to eleven
11 Patriots. Maybe if we had more Colts' balls, we
12 could have seen an effect. So that's correct,
13 that's what happened.

14 Then we went and did all that physical
15 testing. We saw the effect of all those other
16 parameters, the effect or no effect of those
17 parameters. We looked at that and then we went back
18 and looked at the variability of the data comparing,
19 at the same time looking at the variation of the
20 balls, individual balls. And could we account in
21 the difference in pressures based on other physical
22 factors.

23 And the ranges and variability of factors
24 were not predicted by the effect of, say, ball
25 wetness and ball dryness that we saw. So we went

1 back and said, you know, there is variability in
2 here.

3 The statistical analysis you can't conclude,
4 but based on a review of the fluctuations in the
5 data and looking at the physical experiments that we
6 did, we concluded that there is a difference there
7 and that difference is most likely the differences
8 in starting pressure of the footballs, two different
9 analyses.

10 The statistical analysis did not preclude us
11 from going back and looking at the physical
12 realities that we measured. And that's what we did
13 to come to that conclusion.

14 Q. And with respect to key finding or criticism
15 number 2 of Dean Snyder, does that affect your views
16 with respect to the appropriateness of the work done
17 by Exponent or the conclusions reached by Exponent?

18 A. No.

19 Q. Directing your attention to key finding or
20 criticism number 3 identified by Dean Snyder, which
21 is, "If the logo gauge was used to measure the
22 Patriots' balls before the game, then eight of the
23 eleven were above Exponent's expected outcome."

24 Do you have a reaction or a response to that
25 criticism?

1 A. That's unfounded, too.

2 Q. Why is it unfounded?

3 A. Well, there's already been a lot of
4 discussion here about logo versus non-logo gauge.
5 If you were to take the logo gauge and assume that
6 those measurements were made with the logo gauge,
7 then, as was talked about today by Dean Snyder, the
8 pressure the Patriots gave the balls to the referee
9 pre-game were 12.2, below the League minimum.

10 Q. 12.17, right?

11 A. Yes. He calculated, I rounded it up, 12.17,
12 correct, okay. And then if you look at the Colts'
13 balls, if the same logo gauge was used, it's reading
14 12.6, 12.7. We were told that the Patriots and the
15 Colts were insistent that they delivered balls at 12
16 and a half and 13, which means, geez, looks like the
17 logo gauge wasn't used pre-game.

18 But, anyway, if you take that number, 12.17,
19 and you plug it into the Ideal Gas Law, which is a
20 mathematical formula, you can get a lower pressure
21 and you can change the results, that's correct. But
22 that's like using numbers that don't make any sense.

23 The other factor that he used to come up with
24 this eight of eleven were above Exponent's expected
25 outcome was, he assumed a temperature 71 degrees

1 pre-game. That is a variable that we looked at. We
2 looked at the range of temperature in the pre-game
3 shower room. We actually measured it to be between
4 67 and 71, 72 degrees.

5 That's why in all of our experiments, we
6 looked at that as a potential range. If you use 71,
7 yeah, you get the numbers that Dean Snyder
8 calculated. But if you go use 67, which is the
9 other end of the range, you find out six of the
10 Patriots' balls were under the expected outcome.
11 When I say "expected outcome," predicted by the
12 Ideal Gas Law, okay.

13 And if you look at the non-logo gauge
14 pre-game, all of it, no matter how you look at it,
15 all of it comes out that eight of the eleven balls
16 fall below the expected outcome of the Ideal Gas
17 Law. Number 1, the use of the logo gauge pre-game.
18 Number 2 is the use of 71 degrees versus 67 degrees.
19 And the third one is the same mistake that has been
20 made by Professor MacKinnon, by AEI and now by Dean
21 Snyder.

22 They assume in their calculations of the
23 Ideal Gas Law what you have to do to use the Ideal
24 Gas Law is the balls come off the field at
25 48 degrees Fahrenheit and stay at 48 degrees

1 **Fahrenheit throughout the measurement. That's the**
 2 **only way you can use the Ideal Gas Law.**
 3 **That we know didn't happen. The pressure is**
 4 **increasing with time. So this analysis by**
 5 **Dean Snyder doesn't make any sense, even just**
 6 **thinking about how the temperature was fixed**
 7 **throughout the measurement period, and we know that**
 8 **that's not correct. So those three factors, I can**
 9 **take no faith in that conclusion.**

10 **Q.** And did criticism 3 or finding 3 of
 11 Dean Snyder affect your views with respect to the
 12 appropriateness of the work done by Exponent or the
 13 conclusions reached by Exponent?

14 **A. No.**

15 **Q.** Staying with the logo and non-logo gauge
 16 issue for a moment, to what extent did Exponent
 17 consider the possibility that the logo or non-logo
 18 gauge might have been used in connection with its
 19 transient experiments and its game-day simulations
 20 and account for that possibility?

21 **A. Even though the evidence is pointing towards**
 22 **the use of the non-logo gauge, we said let's look at**
 23 **both conditions. What happens if the logo gauge is**
 24 **used or the non-logo gauge is used pre-game? We did**
 25 **that in the statistical analysis we did up front and**

1 way with respect to the statistical significance
 2 analysis performed by Exponent?
 3 **A. Absolutely not. I don't know where that idea**
 4 **came from. We did not consider the Colts' balls as**
 5 **controls in other statistical analysis. We looked**
 6 **at them both equally. And looked at the variation**
 7 **in the data for both the Patriots and the Colts.**

8 **There was no assumptions about control or**
 9 **anything like that on the Colts' balls in our**
 10 **statistical analysis.**

11 **Q.** You mentioned the AEI report. Did you review
 12 the AEI report that was published?

13 **A. I sure did.**

14 **Q.** And with respect to the AEI report, one of
 15 the criticisms or observations made by AEI was that,
 16 "There was no statistically significant difference
 17 between the pressure drop of the Colts' balls versus
 18 the Patriots' balls if you assume the logo gauge was
 19 used pre-game as opposed to the non-logo gauge."

20 Do you have a reaction or response to that
 21 criticism?

22 **A. Yes, I found that to be unfounded as well.**
 23 **What the AEI report did is look at four possible**
 24 **combinations pre-game. All the measurements were**
 25 **made with the logo gauge. All the measurements were**

1 **we did it in every experiment we ran.**
 2 **You will see the experimental data shows for**
 3 **logo gauge and non-logo gauge. We also looked at**
 4 **the effect of ball wetness and ball dryness. Wet**
 5 **balls and dry balls, we did that consistently**
 6 **throughout all of our experiments. So even though**
 7 **the evidence pointed towards using the non-logo**
 8 **gauge, we considered it throughout our**
 9 **investigation.**

10 **Q.** And those different scenarios are
 11 incorporated into the conclusions that you
 12 described, correct?

13 **A. That's correct.**

14 **Q.** One other thing with respect to Dean Snyder's
 15 analysis, if you go to the page with the Bates Stamp
 16 Number 3429, and this is his description in the
 17 difference in differences statistical approach used
 18 by Exponent.

19 His bullet point 2, with respect to the
 20 difference in differences statistical approach used
 21 by Exponent says that, "The Colts' balls were used
 22 as control. Using Colts' balls as controls required
 23 whether the greater drop of psi in Patriots' balls
 24 was statistically significant."

25 Were the Colts' balls used as controls in any

1 **made with the non-logo gauge.**
 2 **And then, for some reason, which there is no**
 3 **evidence of, Walt Anderson switched them out. He**
 4 **measured Patriots' balls with the logo and the**
 5 **Colts' balls with the non-logo and then the other**
 6 **way around. So he looked at four possibilities.**

7 **Two of those possibilities just don't make**
 8 **sense because there's never been any indication that**
 9 **Walt Anderson switched the gauges in the middle of**
 10 **his pre-game measurements. We had no indications.**
 11 **We were actually told to assume that that did not**
 12 **happen because there was no evidence that that**
 13 **happened outside of AEI. We take those two**
 14 **scenarios off the table.**

15 **The other two scenarios, there is one set of**
 16 **combinations within those within which you could get**
 17 **to the conclusion that the p-factor as we heard**
 18 **about today was 6.7 percent, but there's problems in**
 19 **that analysis as well.**

20 **They had included in that analysis, AEI, a**
 21 **factor related order to order, which we had**
 22 **concluded was not a factor included in that. If you**
 23 **take that factor out, you cut that probability in**
 24 **half down to about two and a half percent.**

25 **Q.** The AEI report also suggested that, "The

1 evidence indicated that because the Patriots' balls
2 were measured at the start of halftime, whereas the
3 Colts' balls were measured at the end of halftime,
4 after sufficient time had passed for the balls to
5 warm up and return to their pre-game pressure, that
6 was an explanation for the delta in pressure drop."

7 Did you have a reaction or response to that
8 observation?

9 **A. Yes. That makes no sense, as I just talked**
10 **about, because we specifically looked at that**
11 **effect. It suggests to me AEI didn't even read our**
12 **report. We looked at the effect of transient**
13 **change, the change in pressure with time**
14 **specifically as a possible contributing factor and**
15 **concluded that it wasn't.**

16 **So I don't know where they got that**
17 **conclusion from, but it's not consistent with the**
18 **data published in our report.**

19 **Q.** And AEI in their report also suggested that,
20 "There may have been a flaw in the statistical
21 significance equation used by Exponent."

22 Did you have a reaction or response to that
23 criticism?

24 **A. That one didn't make sense, either. The AEI**
25 **report says that we used a multivariable regression**

1 **analysis and they did something to try to repeat our**
2 **numbers. They got most of them except they were**
3 **unable to repeat our calculations.**

4 **And they did something else. We didn't use a**
5 **multivariable regression analysis. We used what's**
6 **called a liner mixed mode analysis. They are**
7 **statistical tools. So either they didn't understand**
8 **what we did or just assumed we did something else.**
9 **And that's why they couldn't reproduce our results.**

10 **So yes, we used a linear mixed mode**
11 **regression analysis, which is a standard**
12 **statistically-accepted tool. So I don't understand**
13 **where that criticism came from.**

14 **Q.** And Professor, Dr. Caligiuri, after reviewing
15 the AEI report, did it affect, in any way, your
16 views with respect to the appropriateness of the
17 work done by Exponent or the conclusions reached by
18 Exponent?

19 **A. No.**

20 **Q.** You also referred to a report prepared by a
21 Professor MacKinnon. Did you have any responses or
22 reactions to the commentary that was set forth in
23 that report?

24 **A. I think I already mentioned one of them**
25 **because his conclusion regarding the Ideal Gas Law**

1 **calculations again made that same mistake assuming**
2 **the temperature of the footballs at 48 degrees as it**
3 **comes off the field remains at 48 degrees throughout**
4 **the transient period and calculates Ideal Gas Law**
5 **and compares it to the measurements. And that's**
6 **just, you can't do that.**

7 **Q.** And did Professor MacKinnon also make an
8 error with respect to the conversion factor of the
9 balls?

10 **A. Yes.**

11 **Q.** Can you describe that?

12 **A. He failed to convert them all onto the same**
13 **equivalent platform. We know there is a continuing**
14 **error, if you like, in the logo gauge of about**
15 **.4 psi, which is why you have to convert everything**
16 **to a single master gauge calibration, which we did.**

17 **We took a master gauge and made measurements**
18 **and put the pressure on the logo gauge and said what**
19 **the master gauge was doing and came up with a**
20 **calibration curve. And we did the same thing for**
21 **the logo curve. So we calculated and converted all**
22 **the data to the same basis, the same equivalent**
23 **playing field.**

24 **Professor MacKinnon did not do that. He did**
25 **not convert them all, so you are comparing apples**

1 **and oranges.**

2 **Q.** Directing your attention to the MacKinnon
3 study, the MacKinnon report, did it affect your
4 views in any way with respect to the appropriateness
5 of the work done by Exponent or the conclusions
6 reached by Exponent?

7 **A. No.**

8 MR. REISNER: Nothing further at this time.

9 CROSS-EXAMINATION BY

10 MR. KESSLER:

11 **Q.** Ready to go? Good evening, I guess, now.

12 **A. Sorry?**

13 **Q.** Dr. Caligiuri, how do you pronounce your
14 name? I want to get it correctly.

15 **A. "Kala-jerry" [phonetically].**

16 **Q.** "Caligiuri"?

17 Do you like "doctor" or what do you prefer?

18 **A. Whatever you like.**

19 **Q.** I will call you Mr. Caligiuri, okay.

20 Mr. Caligiuri, let's see if we can find some
21 points of agreement. Do we agree that timing was a
22 very important factor in determining whether or not
23 natural causes could explain the results of the
24 Patriots' and the Colts' balls?

25 **A. You had to take that into account, yes.**

1 **Q.** In fact, I think you wrote it was the most
2 significant factor in your report; is that fair?
3 **A. We certainly considered it a significant**
4 **factor, yes.**
5 **Q.** The most significant? That's what you wrote
6 in your report.
7 **A. Yes.**
8 **Q.** You don't disagree with that?
9 **A. No.**
10 **Q.** Just trying to find points of agreement.
11 Second, do you agree, you saw the criticism
12 number 3 that Dr. Snyder presented, and he indicated
13 that you should have recalibrated the starting
14 pressures through the master gauge because you were
15 comparing those starting pressures to the halftime
16 pressures, which you did to the master gauge.
17 Do you agree that you should have done that?
18 **A. No.**
19 **Q.** So you think it's appropriate to take one set
20 of pressures, not do the master gauge and compare it
21 to another set of pressures through the master
22 gauge; that's your opinion?
23 **A. No. The opinion is, in fact, the 12.5 we**
24 **used is a master gauge reading. It is --**
25 **Q.** You didn't do -- for the two balls you tested

1 at halftime, logo or non-logo, you translated to the
2 master gauge, right?
3 **A. Correct.**
4 **Q.** And for the starting time, you didn't do any
5 translation to the master gauge, whether it was logo
6 or non-logo, right? You didn't make any change?
7 **A. You said "starting time."**
8 **Q.** The pre-game measurement, you didn't do any
9 translation to the master gauge there?
10 **A. The master gauge is 12 and a half percent --**
11 **12 and a half psi, and we used 13.0 psi for the**
12 **Colts.**
13 **Q.** Did you do any calculation for the pre-game
14 testing to convert the measurements recorded to
15 something in the master gauge?
16 **A. The master gauge conversion, if you convert**
17 **the 12.5 psi comes from use of the logo gauge**
18 **pre-game.**
19 **And that, as Dean Snyder says, is**
20 **12.17 percent -- 12.17 psi. You can put that in**
21 **there and you can do Ideal Gas Law calculations, but**
22 **they are not consistent with the physical facts.**
23 **Q.** They are not consistent with what physical
24 fact?
25 **A. The fact that if that was happening, then the**

1 **Patriots gave the referees 12.17 psi balls, below**
2 **the League minimum.**
3 **Q.** How do you know that the Colts -- and, I'm
4 sorry. How do you know that the Patriots and the
5 referee were both not using something equivalent to
6 the logo gauge?
7 **A. So you're asking me to assume that all three**
8 **of these people, the Patriots pre-game, the Colts**
9 **pre-game, and Mr. Anderson pre-game all used the**
10 **same gauge that were exactly the same amount off?**
11 **All the tests --**
12 **Q.** No.
13 **A. I'm sorry; go ahead.**
14 **Q.** I am asking the following. You have never
15 seen or tested or looked at the Colts' gauge or the
16 Patriots' gauge pre-game, right?
17 **A. That's correct.**
18 **Q.** Okay. So you have to make some assumptions
19 about it, correct?
20 **A. Correct.**
21 **Q.** Do you know if Wilson ever issued a version
22 of its logo gauge to the NFL teams in the past, just
23 like the one that was used for some of the
24 measurements at halftime to NFL teams and that over
25 the age of those gauges, they would all approximate

1 what the logo gauge was? Did you ever consider that
2 possibility?
3 **A. So you're asking me to consider that Wilson**
4 **gave the League gauges that were out of calibration?**
5 **Q.** No, that over time they got out of
6 calibration.
7 **A. All the gauges got out of calibration by the**
8 **same amount?**
9 **Q.** Over the same period of time.
10 **A. I would say that's pretty highly unlike.**
11 **Q.** You think that's unlikely? Did you do any
12 test for that?
13 **A. How would we test that? We tested the logo**
14 **gauge and found that it reads very repeatedly .3 to**
15 **.45 above the master gauge. And we tested hundreds**
16 **of gauges that we got, exemplar gauges. Yes, you**
17 **are right, they are new. And they all read what the**
18 **master gauge said they should be.**
19 **Q.** Your testimony is the logo gauge, which the
20 referee who was testing, he had two gauges, the logo
21 gauge and the non-logo gauge, right?
22 **A. He had those in his possession, yes.**
23 **Q.** And sometimes you understood he would use the
24 logo gauge, right? Sometimes in some games over his
25 life, he would use the logo gauge, right?

1 **A. I don't know if I know that for a fact.**

2 **Q.** Okay. My question is: What you are
3 testifying is, so every game he ever tested when he
4 used the logo gauge, he could have been allowing
5 illegal balls into play; is that what your testimony
6 is?

7 **A. If he was using the logo gauge and it was off**
8 **by .3, by .45, and the team had set the ball at 12**
9 **and a half, it would have fallen below and he**
10 **wouldn't have known.**

11 **Q.** So there could have been numerous NFL games
12 in which he used the logo gauge where the balls were
13 underinflated, in your view, below the 12.5?

14 **A. I haven't analyzed all the games in history**
15 **and which gauge he used and didn't use.**

16 **Q.** You just said all of the hundreds of exemplar
17 gauges you used were new, correct?

18 **A. We bought them, yes.**

19 **Q.** Did you do any testing as to over time, if
20 you have a gauge for one year, two years, three
21 years, those gauges, what that does to the -- to how
22 the gauges register in terms of their calibration?

23 **A. Well, we have one data point, the non-logo**
24 **gauge never got off by that much. We certainly**
25 **didn't test these gauges for years on end. There**

1 **wasn't any time for that. So we didn't watch one or**
2 **multiples of our exemplar gauges over a three-years'**
3 **period. No, we didn't do that.**

4 **Q.** How do you know the non-logo gauge wasn't
5 also a new gauge? Did you do any examination of
6 that?

7 **A. Didn't look very new.**

8 **Q.** Do you know how old it was?

9 **A. No.**

10 **Q.** Do you know what its age was compared to the
11 logo gauge?

12 **A. No.**

13 **Q.** You don't know any of that?

14 **A. No.**

15 **Q.** Okay. Now, you could have gone out to eBay
16 or something and bought old gauges, right?

17 **A. I think we looked pretty hard to find gauges.**

18 **Q.** Did you look specifically for older gauges?

19 **A. We looked for all the gauges we could find.**

20 **Q.** So your testimony under oath is you
21 specifically were looking for older gauges and you
22 couldn't find them anywhere on the internet? That's
23 your testimony --

24 **A. I can't -- I can't --**

25 **Q.** -- under oath? Is that your testimony, your

1 sworn testimony?

2 **MR. NASH:** Objection.

3 **MR. LEVY:** You can answer.

4 **A. We went out and collected all the gauges we**
5 **could find. Were we specifically looking for older**
6 **gauges that were, like, three years old? No, we**
7 **didn't do that.**

8 **Q.** With respect to timing, okay, is it correct
9 as Dr. Snyder said that your difference of
10 differences analysis as presented did not have any
11 timing variable in the regression?

12 **A. Initially, yes. We went back and put that**
13 **back in after we saw the effect of time on pressure.**

14 **Q.** So the initial test you did to determine
15 whether there was anything to study did not have a
16 timing variable?

17 **A. Not specifically, no.**

18 **Q.** Okay. And had you put in that timing
19 variable, do you think Dr. Snyder put in the timing
20 variable improperly?

21 **A. I'm not sure. You mean the graphs that he**
22 **showed?**

23 **Q.** Yes. In other words, he states for his first
24 criticism, he took your analysis and simply put in
25 the timing variable in his first one, before he had

1 three cases. The first case all he did was put in
2 timing. Did you see that one?

3 **A. Well, I think in all three cases, he put**
4 **timing in some form.**

5 **Q.** Yes. The first one was just timing, that
6 exactly your thing, but putting in a timing,
7 assuming that the Colts' balls were tested before
8 the reinflation.

9 The second one put in timing assuming the
10 Colts' balls were tested after reinflation.

11 And the third one added in the wetness
12 factor. So those were the three ones. Do you
13 remember that now?

14 **A. Yes, I do.**

15 **Q.** So in the very first one he did where he
16 stated that he just put in a timing factor and made
17 no other change and assumed that the Colts ball were
18 tested before reinflation, do you think he did that
19 improperly in some way? Do you have some criticism
20 of his methodology for doing that?

21 **A. I think I would leave that to the**
22 **statisticians to discuss. But what I did notice,**
23 **and I don't know exactly how he calculated the**
24 **p-values he showed us, but if you look at what he**
25 **did, he took the averages, took the averages of the**

1 **Colts' balls and the average -- he looked at the**
 2 **average of the Colts' balls measured right after the**
 3 **Patriots' balls.**
 4 **And you can't do that. You can't compare**
 5 **averages because inside those four balls the Colts**
 6 **are doing, pressure is changing with time. You have**
 7 **to do a ball-by-ball movement and then do the**
 8 **analysis. To me, he just took a grab of averages**
 9 **and compared it to a grab of averages.**

10 **The other thing he did was he used that curve**
 11 **he showed where he pulled data off; that's actually**
 12 **the wrong curve to use.**

13 **Q.** Let me ask you this: Did you do any analysis
 14 of the fact that the Colts' balls could have been
 15 much dryer than the Patriots' balls because the
 16 Patriots' balls were used much more in the second
 17 quarter of the game?

18 **A. Yes.**

19 **Q.** Okay. And tell me what analysis you used
 20 which compared the Colts' balls being at a lower
 21 level of wetness versus the Patriots' balls being at
 22 a much higher level of saturation.

23 **A. If you go to Figure 28 on page 55, that's**
 24 **sort of the summary of the transient experiments we**
 25 **ran, and then the overlay of the average data on the**

1 **transients.**

2 **Q.** Yes.

3 **A. And you see wet and dry, wet and dry, wet for**
 4 **the Patriots, dry for the Patriots, dry for the**
 5 **Colts, dry for the Colts.**

6 **Q.** You used the same wetness for the Patriots
 7 and the Colts' balls, right, when you did that
 8 analysis; you did the same spraying procedure?

9 **A. They were sprayed the same way in the**
 10 **beginning of time --**

11 **Q.** Right.

12 **A. -- in the beginning of the measurement cycle.**
 13 **Let me finish my answer, okay. And then they dried.**
 14 **We didn't keep rewetting them throughout the**
 15 **transient period. So when we say "Patriots wet,"**
 16 **they were wetted to that amount and they dried with**
 17 **time, because we didn't rewet them.**

18 **The Colts' balls were wetted to the same**
 19 **degree to start and dried with time. Did we look at**
 20 **were the Colts' balls, on average, dryer when they**
 21 **went into the locker room? No, but there's no**
 22 **indication that that's actually the case.**

23 **Q.** Ah, let's assume it was the case. You didn't
 24 test for that, right?

25 **A. Did we look at wetness as a variability?**

1 **Q.** Yes.

2 **A. In the beginning, no, we didn't.**

3 **Q.** Okay. Are you a football fan?

4 **A. Yeah.**

5 **Q.** You are familiar with the fact that when the
 6 defense is on field during a rainy game, the balls
 7 are in the bag?

8 **A. The balls can be in the bag. We actually --**
 9 **Paul, Weiss actually talked to the ball boys that**
 10 **were actually handling the balls on game-day. And**
 11 **that was part of our game-day simulation which we**
 12 **couldn't account for the pressure drop anyway. And**
 13 **some balls were in the bag; some weren't. They**
 14 **tried to keep them as dry as possible.**

15 **Q.** Okay, try to keep them as dry as possible,
 16 right? It's easier to keep your ball dry if you are
 17 not in offense and the ball is not out in the field,
 18 right? You agree with that, right?

19 **A. If all the balls are in the bag and you are**
 20 **not playing football and the balls are in the bag**
 21 **sealed up, balls will be not as dry -- not as wet as**
 22 **the ones you just picked up off the field.**

23 **Q.** So you would have to agree with me it's a
 24 very plausible assumption that the Patriots' balls
 25 could have been much wetter than the Colts' balls

1 because of the fact that the Patriots were on
 2 offense all the time with the balls? That's
 3 plausible, right? It's not not plausible?

4 **A. It is a possibility, but there is no evidence**
 5 **that that occurred. The ball boys themselves said**
 6 **they tried to keep them as dry as possible.**

7 **Q.** You don't know whether it occurred or not?

8 **A. For all I know, what the ball boys said.**

9 **Q.** Well, if you are on offense and you are
 10 playing with the ball, can you keep it dry when it's
 11 out there on the field?

12 **A. No.**

13 **Q.** Okay. So if the Patriots have those balls
 14 out there on the field, it's plausible those balls
 15 were wetter, sir, right? You are under oath.

16 **A. Sure.**

17 **Q.** Is it plausible?

18 **A. Sure.**

19 **Q.** Okay. And you didn't test for that plausible
 20 assumption, right? Did you test for it?

21 **A. No, because --**

22 **Q.** Thank you.

23 **A. -- what would you test for?**

24 **Q.** Let's move on to the next one.

25 **MR. LEVY:** Let him finish his answer.

1 MR. KESSLER: Okay.

2 **Q.** You didn't test for it, right?

3 **A.** **What would you assume they were?**

4 COMMISSIONER GOODELL: Let him finish his
5 answer.

6 **A.** **What would you assume they were? What are**
7 **you going to pick? What are you going to pick?**

8 **Well, the Colts' balls were five percent dryer than**
9 **the Patriots and ten percent? There is no basis to**
10 **pick anything. So we picked extremes of what we**
11 **thought we could do and evaluated that.**

12 **Q.** Right. The data was very limited, so it
13 constrained what you could do, right?

14 **A.** **Yeah. The ball boys weren't out there with**
15 **the hydrometer measuring the wetness of the balls,**
16 **no.**

17 **Q.** No. The referees weren't indicating whether
18 it was a dry ball or a wet ball when they did the
19 test; is that true?

20 **A.** **That's true.**

21 **Q.** Okay. It's also true the referees weren't
22 indicating if one ball was especially wet and one
23 ball was a little wet; they didn't tell you that,
24 right?

25 **A.** **No.**

CROSS/CALIGIURI/KESSLER Page 387

1 **Q.** And you don't know if, on the number of balls
2 tested, if there were more Patriots' balls that were
3 wet as opposed to Colts' balls, just one way or the
4 other, correct?

5 **A.** **No, but you got to remember we tested the**
6 **ranges of wet and dry, so all the balls would fit in**
7 **these bands that are plotted in Figure 28,**
8 **differences in wetness.**

9 **Q.** Not the variability of wetness; you didn't
10 test that? You just told me that, right?

11 **A.** **We did.**

12 **Q.** You didn't test if the Patriots' balls were
13 much wetter than the Colts' balls? You just stated
14 that.

15 **A.** **At the beginning of the measurement period**
16 **what you suggested, the balls were brought into the**
17 **locker room and, on average, the Patriots' balls**
18 **were wetter --**

19 **Q.** Yes.

20 **A.** **-- than the Colts' balls.**

21 **Q.** You didn't test for that?

22 **A.** **We did not test for that because there was no**
23 **basis to test for it.**

24 **Q.** Somebody else might disagree with that.
25 Let's move on to another one, okay. You did an

1 experiment to try to determine if natural causes

2 could explain the drop in the Patriots' balls,

3 right? You could explain the drop in pressure in

4 the Patriots' balls? You did a series of

5 experiments, right?

6 **A.** **We looked at usage, physical and**
7 **environmental factors.**

8 **Q.** And on page 54 of your analysis, you say,
9 "For the Patriots, it appears that so long as the
10 average time at which the Patriots' balls were
11 measured is no later than approximately two minutes
12 after the balls were brought back into the official
13 locker room, the game-day results can be explained
14 by natural causes," right?

15 That was your conclusion?

16 **A.** **Yes.**

17 **Q.** So the reverse is also true. It's your
18 conclusion that if the Patriots' balls were measured
19 earlier -- I'm sorry, if the Patriots' balls were
20 measured later than approximately two minutes, then
21 natural causes could explain it, right? The
22 converse has to be true?

23 **A.** **No.**

24 **Q.** Well, I have to understand this, then. Read
25 your sentence I'm reading. It says, "For the

CROSS/CALIGIURI/KESSLER Page 389

1 Patriots, it appears that so long as the average
2 time at which the Patriots' balls was measured is no
3 later than approximately two minutes after the ball
4 was brought back into the official locker room, the
5 game-day results can be explained by natural
6 causes," right?

7 **A.** **That's what it says.**

8 **Q.** Okay. So what that means is, if the
9 Patriots' balls are brought in and started to be
10 tested in the first minute, then natural causes
11 could explain them, right?

12 **A.** **This is the average time. So that means that**
13 **all eleven of the balls have to be measured within**
14 **the first two minutes. Is that a possibility? Yes.**
15 **I don't think that's very likely.**

16 **Q.** When it says "average," "average" doesn't
17 mean all within the first two minutes? It means, an
18 average means when you take all the times, you
19 average it together; isn't that what "average"
20 means?

21 **A.** **No. What it means is that if all the**
22 **Patriots' balls were measured within zero and**
23 **two minutes and the average falls within that, then**
24 **the natural causes can explain it.**

25 **Q.** That's not what it said. Is this a

1 misstatement here? What I'm reading it says, "As
2 long as the average time at which the Patriots'
3 balls were measured is no later than approximately
4 two minutes after the balls are brought back into
5 the official locker room, the game-day results can
6 be explained by natural causes."

7 Doesn't that mean "average time" means
8 "average time"? You add all the times and you come
9 up with an average? You divide it by the number of
10 observations? Isn't that what an average is?

11 **A. Yes.**

12 **Q.** Okay. So that would be some of the balls
13 could have been later than two minutes, some could
14 have been at 30 seconds, some could have been at
15 one minute, some could have been at one and a half
16 minutes, some could have been at two, some could
17 have been at two and a half minutes and the average
18 could still be within two, right?

19 **A. Correct.**

20 **Q.** And if that was done, then it is your
21 conclusion that natural causes could explain what
22 you measured for the Patriots' balls?

23 **A. Yes, and I said that and -- but that means**
24 **the balls got started measuring as soon as they got**
25 **into the locker room, which I don't think is very**

1 **realistic.**

2 **Q.** Were you in the locker room?

3 **A. No.**

4 **Q.** Did anyone write down the time at which they
5 started doing it?

6 **A. No.**

7 **Q.** Now, did you know that the officials felt
8 rushed to try to get all the balls done? They
9 didn't even finish all the Colts' balls, did they?

10 **A. They did four.**

11 **Q.** They only did four out of eleven or twelve,
12 right?

13 **A. Right.**

14 **Q.** And so you don't think in that environment
15 they would have started immediately? That's not a
16 plausible assumption?

17 **A. I think all the indications is that it would**
18 **be very hard for them to get started with all the**
19 **measurements and finish the average of it less than**
20 **two minutes to get it done. I don't think that's a**
21 **highly plausible explanation. Is it possible?**
22 **Absolutely. That's why I put it in this report.**

23 **Q.** Now, this statement here that you have is
24 based on the assumption that the measurements were
25 done by which gauge for the Patriots' balls?

1 **A. I believe that's for the non-logo gauge.**

2 **Q.** Okay. If it was done by the logo gauge --

3 **A. No, I'm sorry. That's the logo gauge; I**
4 **apologize.**

5 **Q.** If it was done by the non-logo gauge, would
6 they have a longer period of time? I believe if you
7 look at your charts on page 55, that might help you.

8 **A. Yes, that's correct.**

9 **Q.** They would have a longer period of time if it
10 was a non-logo gauge, correct?

11 **A. Correct.**

12 **Q.** And you wrote in your report it's uncertain
13 as to which gauge was used? That's why you tested
14 both?

15 **A. Correct.**

16 **MR. KESSLER:** So if we had the non-logo
17 gauge, there's a longer window, Commissioner --

18 **Q.** -- if you would explain to him, that it is
19 possible that your results would indicate natural
20 causes could explain this, right?

21 **A. And I have presented those possibilities in**
22 **this report. You have to look at the totalities of**
23 **the information availability and what's physically**
24 **plausible leads us to the conclusion of what is more**
25 **likely. But that's why we did all this testing, was**

1 **to look at all the possibilities, and there were**
2 **possibilities you could find. But you look at the**
3 **totality of the information available and conclude**
4 **what's most likely to have occurred.**

5 **Q.** Do you agree that the relative temperature
6 that should be measured, if you could, would be the
7 internal temperature of the football and not the
8 external room temperature?

9 **A. The problem with measuring the internal, and**
10 **we tried to do this, is that the air inside of a**
11 **football is stagnant. It's not flowing. So that**
12 **means you have very large gradients in temperature.**

13 **So if you were to put a thermo -- and we**
14 **tried to do this -- and you tried to measure the**
15 **temperature in a football, you are going to get**
16 **really wildly weird results, because the gradient is**
17 **not uniform. So if you measure this spot, it's not**
18 **representative of that spot over there or that spot**
19 **over there.**

20 **So that's why, yeah, I would agree with you,**
21 **but there's no reliable way to do that unless you**
22 **could monitor every cubic millimeter of air inside a**
23 **football.**

24 **Q.** Whether or not it's a reliable way to do it,
25 you would agree that what actually the Natural Gas

1 Law predictions you should look at is the internal
 2 temperature of a football if you could measure that,
 3 right?
 4 **A. If you are comparing external temperature to**
 5 **external temperature, then you can use the Ideal Gas**
 6 **Law. If you can measure the internal temperature in**
 7 **the locker room and measure the internal temperature**
 8 **on the field and then do the same thing, yeah,**
 9 **that's a good way to do it.**

10 **Q.** Okay. Do you agree with me that the internal
 11 temperature of a football could be different from
 12 the external temperature?

13 **A. That's why the pressure is increasing with**
 14 **time.**

15 **Q.** Yes. So it can be different, correct?

16 **A. It is different.**

17 **Q.** And you have no measurements for the internal
 18 temperature of the footballs at any time, at
 19 halftime, post-time, before the game? You have no
 20 measurements for that at all, but you can't do them?

21 **A. We tried to do it and I explained to you why**
 22 **that data is not reliable.**

23 **Q.** Is that a long way of saying you don't have
 24 those measurements?

25 **A. We have them. You can look at them.**

1 **Q.** But you don't think they are reliable?

2 **A. That's right.**

3 **Q.** Okay, we will do it that way. Now, let me
 4 ask you this. Had you found originally through your
 5 differences from differences analysis that there was
 6 no statistically significant effect, is it correct,
 7 as was suggested, you would have closed up your
 8 books and not done any further analysis? Because
 9 that's what was suggested by counsel in the
 10 questioning. You may have been here for that.

11 **A. I'm not sure that's the case.**

12 **Q.** So you disagree with counsel about that?

13 **A. I think we would want to pursue it a bit more**
 14 **because the statistical analysis was only one part**
 15 **of the overall program.**

16 MR. KESSLER: Could we do this, Commissioner?
 17 If I may, I know it's running late. I think if you
 18 give me a break, I can more consolidate my notes and
 19 possibly either significantly limit how many more
 20 questions I have or even possibly eliminate my
 21 questions. But I think it would be worth taking a
 22 break for five minutes rather than sitting here
 23 right now while I do that.

24 MR. LEVY: Yes.

25 (Recess taken 7:04 p.m. to 7:12 p.m.)

1 **Q.** Mr. Caligiuri, one of the things you tested
 2 for was the Patriots' gloving of the football,
 3 correct?

4 **A. We looked at the effect of the Patriots'**
 5 **pre-game work on the balls to see if that could be**
 6 **causing the differences in pressure.**

7 COMMISSIONER GOODELL: What do you mean the
 8 "gloving"?

9 **Q.** Just for the Commissioner's benefit, the
 10 gloving was that the Patriots indicated that as part
 11 of their preparation of the balls, they would have
 12 someone take receivers' gloves and vigorously rub
 13 the balls to prepare them; is that correct?

14 **A. That's part of what they do, yes. I think**
 15 **that's what Mr. Brady talked about as part of the**
 16 **overall preparation program.**

17 **Q.** And what you meant to do in your testing was
 18 to try to replicate what the Patriots did, correct?

19 **A. As best we could, yes.**

20 **Q.** Now in your gloving experiment, what you did
 21 is that you first took a measurement of the psi and
 22 then you did the gloving; is that correct?

23 **A. The whole preparation treatment, the gloving**
 24 **was an important part, yes.**

25 **Q.** But what the point here is in the gloving,

1 when did you take your measurements? Did you take
 2 it before the gloving or after the gloving?

3 **A. Before the gloving? Measurements of what?**
 4 **Figure 16 talks about it.**

5 **Q.** I will try to be more specific. Let me find
 6 my specific reference to this. One second.

7 **A. I think Figure 16 in the report is the answer**
 8 **to your question.**

9 **Q.** So what does Figure 16 indicate? When did
 10 you take your measurement for the gloving?

11 COMMISSIONER GOODELL: What page is that?

12 THE WITNESS: I'm sorry, 34.

13 **A. Sorry?**

14 **Q.** Explain what that figure shows as to when you
 15 did the gloving and when you took your measurements.

16 **A. It's very clear here we started out at**
 17 **12.5 psi. We were measuring the pressure**
 18 **internally, continuously throughout the entire**
 19 **rubbing.**

20 **Q.** So you first measured 12.5. Just tell me the
 21 order of what you did, if you can, please.

22 **A. We took a football. We put a pressure gauge**
 23 **inside at times zero, 12 and a half psi and we are**
 24 **rubbing. And the pressure is going up as you can**
 25 **see in Figure 16. We are monitoring it**

1 **continuously, so I guess I am not understanding your**
2 **question.**

3 COMMISSIONER GOODELL: I think that's the
4 issue. You are doing it continuously?

5 THE WITNESS: Continuously.

6 COMMISSIONER GOODELL: Monitoring the
7 pressure?

8 THE WITNESS: Yes.

9 **Q.** So you were monitoring the pressure from the
10 beginning to the end of the gloving process; is that
11 correct?

12 **A. Yes.**

13 **Q.** Okay. So based on your figures, if the
14 Patriots were gloving the ball before setting their
15 pressure to give it to the referees, let's assume
16 that's correct, okay?

17 You understand what I'm saying, that the
18 Patriots' procedure was to glove their balls and
19 this was done before they would go in to the
20 referees for the measurement of the pressure at,
21 let's say, 12.5, okay? You understand what I'm
22 saying?

23 **A. Yes.**

24 **Q.** So in other words, there's a period on your
25 Chart 16, there's a period before the 12.5 when the

1 **Q.** After the rubbing was stopped, do you know
2 that the rubbing was done a period of time before it
3 was given to the referees? You know that?

4 **A. I believe the preparation was done before the**
5 **balls were given to the referees.**

6 **Q.** It wasn't done the second before the
7 referees, right? It was done some period of time
8 before then?

9 **A. Yes.**

10 **Q.** Okay. So if they set their psi at 12.5,
11 after rubbing, that was their procedure, under your
12 analysis, how much below 12.5 would it drop as the
13 rubbing effect wore off?

14 **A. The rubbing effect is worn off within about**
15 **20 or 30 minutes of when you started.**

16 COMMISSIONER GOODELL: Mr. Kessler, didn't
17 Mr. Brady testify that he picked the ball up three
18 to four hours before the game?

19 MR. KESSLER: Yes, he did.

20 COMMISSIONER GOODELL: So would that mean the
21 rubbing was over at that point in time?

22 MR. KESSLER: The rubbing would have been
23 done before he picked it up, correct, before he
24 picked up the balls.

25 COMMISSIONER GOODELL: At least three to

1 gloving is taking place? You understand my comment?

2 **A. The rubbing was started about ten minutes**
3 **after zero.**

4 **Q.** Let's say it started at minus ten. In other
5 words, the point is before the first measure at the
6 referee, the gloving was done. Let's assume that
7 for the moment, okay?

8 COMMISSIONER GOODELL: I'm not sure I'm
9 clear.

10 **A. No, I'm sorry. I really apologize for that.**
11 **This is an experiment that we did where we started**
12 **at 12 and a half and we did the rubbing experiment**
13 **and the pressure came back down to the initial**
14 **pressure within 30-some-odd minutes, 40 minutes.**

15 **Q.** If, in your analysis, if after gloving the
16 balls, the Patriots set the balls to a pressure of
17 2.5 or 2.6, let's say the Patriots gloved their
18 balls and that's the pressure they are testing for
19 and it's sitting before it goes to the referees,
20 that's your understanding of what happened, correct?

21 **A. I'm not exactly sure when the balls were**
22 **prepared prior to giving them to the referees. I'm**
23 **not quite sure of that timing, but the balls were**
24 **given to the referees presumably at 12 and a half**
25 **after the rubbing was done.**

1 four hours by the time the referee checked the ball,
2 right?

3 MR. BRADY: Can I talk?

4 MR. KESSLER: Why doesn't Mr. Brady explain.

5 MR. BRADY: On that particular day, like I
6 said, we changed. They were rubbing in all the new
7 balls, which was the first time we did it all
8 season. So when I picked the balls, I still had
9 them rub the balls as I left the equipment room to
10 go for my game-day preparations.

11 So I still had them, say, I like these, you
12 know, however many, 17, 18, 19 balls. Just glove
13 these five or six balls a little bit longer and then
14 I left as they were still finishing those up.

15 COMMISSIONER GOODELL: Okay. But if they had
16 rubbed them for two hours, that would have changed
17 the balls significantly, I presume, for you --

18 MR. BRADY: Yeah.

19 COMMISSIONER GOODELL: -- once you left,
20 right?

21 MR. BRADY: What do you mean?

22 COMMISSIONER GOODELL: This was three to
23 four hours before the game, if I understood you
24 correctly earlier?

25 MR. BRADY: Yeah.

1 COMMISSIONER GOODELL: You said you told them
2 to continue to rub the ball a little bit. And I'm
3 just, I'm making it up. If they rubbed it for
4 two hours, there still would have been an hour to
5 two hours before the referee saw it, I believe?
6 MR. BRADY: Yeah. I'm not sure what
7 happened.
8 MR. KESSLER: You know what? The facts are
9 too confused here. I'm just going to drop this
10 subject. I don't think it's significant to the
11 overall analysis. I have no further questions.
12 COMMISSIONER GOODELL: Okay. Did you finish?
13 I'm sorry.
14 MR. BRADY: No, I did, yeah.
15 COMMISSIONER GOODELL: I understand your
16 point.
17 MR. BRADY: Yeah. I said finish these five,
18 glove them.
19 MR. REISNER: Very briefly.
20 REDIRECT EXAMINATION BY
21 MR. REISNER:
22 Q. Dr. Caligiuri, I want to direct your
23 attention to page 55 of the Exponent report because
24 I think there was a little confusion in the question
25 with Mr. Kessler. And I want to direct your

1 attention to the figures showing the non-logo gauge
2 and logo gauge assumptions and comparing the
3 transient results.
4 Can you briefly describe the significance of
5 the intersection, if any, of the transient curve in
6 each figure with the halftime average indicated for
7 each of the -- each of the Patriots' balls and the
8 Colts' balls?
9 And as a part of that, describe the
10 significance of the triangle created as a result of
11 any overlap and whether that makes it more likely
12 that the non-logo gauge or the logo gauge yields
13 results that could potentially be consistent with
14 natural phenomena.
15 A. Yeah, I think there was confusion there when
16 I think about it. If we look at the first figure in
17 28, the non-logo gauge, this is, the transient data
18 for the Patriots is in red and the transient data
19 for the Colts is in blue.
20 Superimposed on that is the average values of
21 the measurements for the Patriots and for the Colts.
22 What the left-hand side of Figure 28 shows,
23 comparing to the average, there is no intersection
24 of the average --
25 THE WITNESS: Are you on there? Page 55.

1 COMMISSIONER GOODELL: Yeah, go ahead.
2 Q. And what does that absence of an intersection
3 mean?
4 A. There is no way on an average basis that the
5 average data would have been consistent with the
6 transient data for the non-logo gauge.
7 Q. And that's with respect to the non-logo
8 gauge, right?
9 A. The non-logo gauge.
10 Q. So the extent that you said in responses to
11 Mr. Kessler that the non-logo gauge presented data
12 that suggested that there was a larger window of
13 potential explanation of natural phenomena, that was
14 inaccurate?
15 A. That's correct.
16 Q. Or an error that you made? Can you explain
17 what the facts are based on those graphs.
18 A. The facts are, is that the average data does
19 not overlap at all the transient curve for the
20 Patriots' measurement. There's a slight, little,
21 tiny triangle. If you look at two standard
22 deviations, if you look at that overall air, there
23 is a little tiny window there.
24 Q. What are you referring to when you referring
25 to "the little tiny window," under the non-logo

1 gauge?
2 A. Yeah. If you look at non-logo gauge, you
3 look at the red line and there's kind of a reddish,
4 lighter red band.
5 Q. And what's that band?
6 A. That is the standard deviation of the air to
7 two standard deviations.
8 Q. Do you call that an error band?
9 A. An error band.
10 Q. So there is no intersection between the
11 halftime average and the transient curve with
12 respect to the non-logo gauge, correct?
13 A. That's correct.
14 Q. And now describe the circumstances with
15 respect to the logo gauge.
16 A. If we look at the right-hand graph on
17 Figure 28, it's the same overall plot, except this
18 time it's the measurements, assuming it started with
19 the logo gauge. And there is a window where the
20 average line overlaps the transient curve.
21 So there is a window in there where, on
22 average, for if the average measurement time was
23 less than two minutes, there is a window where it
24 could be explained just by the environmental effect
25 of the ball heating up with time.

1 Q. And Mr. Kessler asked you some questions
2 about the average time it took to measure all eleven
3 of the Patriots' balls.

4 Do you have any understanding as to whether
5 there were any findings by Mr. Wells and the Paul,
6 Weiss team as to the likely time that it took to
7 begin testing the Patriots' balls after the balls
8 were taken into the officials' locker room at
9 halftime?

10 A. I believe they concluded that it most likely
11 was starting after two minutes.

12 Q. Does two to four minutes sound correct?

13 A. Yes.

14 Q. And Mr. Kessler asked you some questions with
15 respect to your understanding of the wetness of the
16 balls. By the way, did you, during your game-day
17 simulations, did you actually watch the game on the
18 television to try to simulate the events as you saw
19 them occur on the television?

20 A. Yes.

21 Q. In the first half, just on TV, recognizing
22 you weren't there, did it look like it was raining
23 very much in the first half?

24 A. No, it wasn't, actually.

25 Q. And do you have an understanding with respect

1 to the efforts by ball boys to keep the balls dry
2 during the game?

3 A. Yes. My understanding is with discussions
4 with the ball boys carried out by Paul, Weiss to try
5 to keep them as dry as possible throughout the
6 entire game time.

7 Q. And did you understand that meant ball boys
8 sometimes put the balls underneath their slickers
9 and between their slickers and their sweatshirts?

10 A. Yes.

11 Q. And do you have any understanding with
12 respect to how frequently balls were swapped out in
13 order to maintain their dryness?

14 A. Pretty frequently.

15 Q. Do you have any understanding as whether any
16 of the game officials who were involved in testing
17 the balls at halftime made any observations as to
18 the wetness of the balls?

19 A. They said they were wetter is what I recall.

20 Q. Do you recall that Clete Blakeman said he
21 thought they were damp at most and certainly not
22 waterlogged?

23 A. Oh, yes, certainly. He said they were damp
24 but not soaked with water or anything like that,
25 yes.

1 MR. REISNER: Nothing further.

2 MR. KESSLER: I am afraid your questions have
3 cause me to ask the following.

4 RECROSS-EXAMINATION BY

5 MR. KESSLER:

6 Q. I'm just reading what you wrote on page 5.

7 With respect to the non-logo gauge, you wrote, "Had
8 the non-logo gauge been used pre-game and using the
9 information provided by Paul, Weiss, that the first
10 Patriots' measurements most likely occurred no
11 sooner than two minutes into the locker room period,
12 there appears to be no realistic window in which the
13 game-day results of both teams can be explained."

14 Do you see that?

15 A. Yes.

16 Q. So now I'm taking away the information given
17 by Paul, Weiss that the first Patriots' measurements
18 occurred no sooner than two minutes. Am I correct
19 that if it occurred immediately, even for the
20 non-logo gauge, that it was possible that natural
21 causes would explain it, correct? That's what that
22 sentence means?

23 A. That sentence says that, but it's accounting
24 for that little, tiny triangle in the standard --
25 two-sigma standard deviation.

1 Q. That is your sentence in the report, not
2 mine, right?

3 A. That's right.

4 Q. And I read it accurately, correct?

5 A. You did, and --

6 Q. And those were the results you recorded?

7 MR. REISNER: Please let him finish.

8 A. And I am explaining why that it says, "Most
9 likely occurred no sooner than two minutes into the
10 locker room period," that no realistic window in
11 which the game-day results can be explained.

12 MR. REISNER: Read the next sentence.

13 THE WITNESS (reading): "The Colts'
14 measurements are explainable, but the Patriots'
15 measurements are not."

16 MR. REISNER: And the last sentence refers
17 expressly to the only overlap being in the error
18 band, doesn't it?

19 THE WITNESS: Yes, the only overlap between
20 the Patriots' transient curve and the Patriots'
21 game-day average is too early in the locker room to
22 be realistic. And the overlap is only with the
23 outer edge of the Patriots' error bands, which puts
24 that possibility way down the probability chart.

25 Q. How early would it have to be? You said "too

1 early." How early, how many minutes? What was it?
 2 **A. If you are looking at the error band now, is**
 3 **what we are talking about?**
 4 **Q.** The non-logo gauge. You just read a sentence
 5 at your counsel's request. It would be too early.
 6 What was too early? What was the time?
 7 **A. It was less than a minute.**
 8 **Q.** So was it 30 seconds, 45 seconds?
 9 **A. Well, based on this graph, it looks like**
 10 **about a minute, a little bit over a minute.**
 11 **Q.** More than a minute, not less than a minute,
 12 now looking at the graph, right? So if they came in
 13 and then a minute started, then it was possible,
 14 correct?
 15 **A. No, the average time had to be within that**
 16 **minute, minute and 15 seconds.**
 17 **Q.** Right. An average, again, we went through
 18 this before, means some could be more than a minute,
 19 some could start 30 seconds, some could be at 45 and
 20 you still could be within an average of a minute,
 21 right?
 22 **A. That would be pretty hard.**
 23 **Q.** Have you tried to do it to see if it's
 24 possible?
 25 **A. We actually tried to replicate the**

1 **measurement process, and it takes about 30 seconds**
 2 **to measure the ball twice.**
 3 **Q.** Is that result reported anywhere in the
 4 reports?
 5 **A. I don't know if it's reported in here or not,**
 6 **but I know that's what we did.**
 7 **Q.** So did you put everything in the report you
 8 thought was significant that the world should know
 9 about?
 10 **A. You are asking me did we write down that**
 11 **we -- it took about 30 seconds. I don't recall if**
 12 **it's in the report or not.**
 13 MR. KESSLER: I don't have any further
 14 questions.
 15 MR. REISNER: I don't have any further.
 16 MR. LEVY: Call your next witness.
 17 MR. REISNER: We call Duane Steffey.
 18 **DUANE STEFFEY**, called as a witness,
 19 having been first duly sworn by a Notary Public of
 20 the State of New York, was examined and testified as
 21 follows:
 22 DIRECT EXAMINATION BY
 23 MR. REISNER:
 24 **Q.** Can you please state your name for the
 25 record.

1 **A. Duane L. Steffey.**
 2 **Q.** And how are you employed?
 3 **A. I am a principal scientist and Director of**
 4 **the Statistical and Data Sciences Group at Exponent.**
 5 **Q.** How long have you been at Exponent?
 6 **A. Eleven years.**
 7 **Q.** And can you please describe, Dr. Steffey,
 8 your educational background.
 9 **A. I hold -- I took an undergraduate degree and**
 10 **then Master's and Ph.D. degrees in statistics all**
 11 **from Carnegie Mellon University.**
 12 **Q.** And can you describe any academic positions
 13 you've held.
 14 **A. For many years I was a Professor of**
 15 **Statistics at San Diego State University.**
 16 **Q.** During approximately what years?
 17 **A. From 1988 to, well, officially until 2006.**
 18 **Q.** And are you a member of any statistical
 19 associations?
 20 **A. Yes, I am. I'm actually an elected fellow of**
 21 **the American Statistical Association and I also hold**
 22 **membership in the Institute of Mathematical**
 23 **Statistics and the Society for Risk Analysis.**
 24 **Q.** And what was your role with respect to the
 25 statistical significance analysis performed by

1 Exponent in this matter?
 2 **A. Well, that was the component of the**
 3 **investigation for which I had lead responsibility,**
 4 **given my background on the multidisciplinary team.**
 5 **Q.** Can you please describe as briefly as
 6 possible the statistical significance analysis
 7 performed by Exponent and the role of the
 8 statistical significance analysis as you understood.
 9 **A. I would be happy to. And I will be**
 10 **amplifying comments made previously by both**
 11 **Mr. Wells and my colleague, Dr. Caligiuri.**
 12 **For us, the statistical analysis was the**
 13 **point of departure for the investigation and not the**
 14 **final destination. We performed the initial**
 15 **analysis very early in our study to understand the**
 16 **halftime data, frankly, to find out whether the**
 17 **differences that were observed were in the noise**
 18 **level.**
 19 **And we looked at the halftime data as the**
 20 **they were recorded and we analyzed those data. We**
 21 **saw anomalies in the record of the halftime data**
 22 **that became even clearer after we did some**
 23 **experimentation. We identified four alternative**
 24 **scenarios, including switching of gauges.**
 25 **Q.** You tested all those scenarios, correct?

1 **A. We tested all those scenarios and we**
 2 **accounted for the possibility that the balls were**
 3 **set pre-game with both the logo gauge and with the**
 4 **non-logo gauge. We accounted for that in our model**
 5 **with a gauge effect and said after accounting for**
 6 **the possibility that either gauge was used pre-game,**
 7 **the difference in average pressure drop that we see**
 8 **between the Colts' and the Patriots' balls were**
 9 **statistically significant.**

10 **Q. Now, Professor Steffey, Dr. Steffey, you were**
 11 **here during Dean Snyder's testimony, correct?**

12 **A. Yes.**

13 **Q. And you heard him describe three key findings**
 14 **or criticisms of the Exponent work, correct?**

15 **A. Yes.**

16 **Q. Key finding 1 or criticism identified by Dean**
 17 **Snyder was that, "Exponent's statistical analysis of**
 18 **the difference in average pressure drops is wrong**
 19 **because it ignores timing."**

20 **Do you have a reaction or response to that**
 21 **criticism?**

22 **A. Yes. I think that criticism is without**
 23 **foundation.**

24 **Q. And why?**

25 **A. Well, for several respects. First of all, it**

1 **immediately after or after a delay, the four Colts'**
 2 **balls were measured.**

3 **So we had the order of measurement, which is**
 4 **essentially a proxy for time. Because there is, as**
 5 **Dr. Caligiuri indicated, it takes some time to go**
 6 **through the process of measuring each ball. And so**
 7 **obviously, you know, balls later in the order, 14 or**
 8 **15 were measured at times later than balls measured**
 9 **at two or three. So it's a proxy for clock time**
 10 **without having to impose an assumption about what**
 11 **clock time was.**

12 **Q. Does it affect your view with respect to the**
 13 **appropriateness of the work done by Exponent or the**
 14 **conclusions reached by Exponent when you take into**
 15 **consideration the criticism identified by Dean**
 16 **Snyder?**

17 **A. Not at all, not at all.**

18 **Q. And why is that?**

19 **A. Well, one point that -- I think the implied**
 20 **claim is that there's an adjustment that's being**
 21 **advanced by Dean Snyder and his team and that if you**
 22 **make that adjustment, that timing explains the**
 23 **difference in average pressure drop, okay.**

24 **There are a couple of important points to**
 25 **keep in mind. The average pressure drop is just one**

1 **mischaracterizes the purpose of the statistical**
 2 **analysis. You need to remember that this analysis**
 3 **originally was done very early in the investigation**
 4 **before we had done extensive experimentation to**
 5 **understand how important timing was.**

6 **We were just looking at the data saying, does**
 7 **this average pressure drop differ for whatever**
 8 **reason? Is there some factor that the difference we**
 9 **are seeing, is it meaningful and is it worth**
 10 **exploring further, just from a purely empirical look**
 11 **at the data? So that's point number 1.**

12 **Point number 2 is that as it became clearer**
 13 **through the experimentation that the timing was, we**
 14 **saw a pronounced timing effect in the experiments,**
 15 **we went back to the halftime data and said, well,**
 16 **you know, and frankly, I had looked at the data and**
 17 **I didn't see an obvious time trend in the record of**
 18 **measurements.**

19 **But I said let's be sure. And we don't know**
 20 **the exact clock time of when the measurements were**
 21 **taken, but we do know the order in which they were**
 22 **taken. Everybody has testified, look, they were**
 23 **measured in the order in which they were recorded,**
 24 **eleven Patriots' balls measured by two officials**
 25 **with two gauges and then at some point later, either**

1 **part of the investigation to look at. Variability**
 2 **is another. And as we looked at -- re-looked at the**
 3 **halftime data later, after the experimentation is**
 4 **done, just asking whether the sequence of**
 5 **measurements makes sense, there is a claim that what**
 6 **Dean Snyder and his team have done is to adjust for**
 7 **timing.**

8 **Now, understand that my comments are going to**
 9 **be based on what I would regard as a preliminary**
 10 **analysis of PowerPoint slides that I got a few days**
 11 **ago. So I don't have a lot of extensive**
 12 **documentation, and a lot of the technical details**
 13 **weren't really drawn out in the testimony today.**

14 **But I was able to replicate nearly exactly**
 15 **the p-values that are reported by Dean Snyder in his**
 16 **slides, taking our significance finding of .004 and**
 17 **then imposing adjustments under three cases.**

18 **Case 1, as best as I can tell involves**
 19 **looking at the transient curves and saying, well, if**
 20 **I think about the average time at which the Colts'**
 21 **balls were measured, and I shift them to correspond**
 22 **to the average time at which the Patriots' balls**
 23 **were measured, what is the psi effect? And in his**
 24 **Case 1, it looks like it's about .31 psi.**

25 **So I believe what he did is to add .31 to the**

1 measured pressure drop for the Colts' balls to each
2 of the Colts' balls, same numerical value to each of
3 the Colts' balls and saying if they had been
4 measured earlier, they would have seen a larger
5 pressure drop.

6 Now, I have got a couple of problems with
7 that. The main problem is that this is claimed to
8 be an adjustment for timing. But remember that
9 eleven Patriots' balls were measured. And if it
10 takes roughly 30 seconds between the measurements of
11 balls, there's at least four or five minutes that
12 elapse between the measurement of the first
13 Patriots' ball and the measurement of the last
14 Patriots' ball.

15 Dean Snyder's adjustment for timing doesn't
16 make any adjustment to the Patriots' data. So to
17 claim that there is an adjustment for timing I think
18 is inaccurate.

19 Now, following that logic, though, I looked
20 at how the p-value is calculated. And, again, the
21 technical details of this aren't really transparent.
22 But because I was able to use two different
23 approaches and get values very close to the reported
24 p-values, I believe what was done is to take, again,
25 and analyze the difference of differences.

1 The two ways I did it were to basically redo
2 the -- what we described -- what has been described,
3 accurately described as the linear mixed effects
4 model. That's our main model in the appendix. And
5 then I also did a simpler analysis just looking at
6 the logo gauge separately and the non-logo gauge
7 data separately, and doing what is called a
8 two-sample t-test to compare the differences in the
9 average drops for the Patriots and the average drops
10 for the Colts.

11 Now, what wasn't acknowledged or discussed
12 here is that in order to replicate -- nearly
13 replicate the p-values that are reported here, there
14 is another implicit assumption, which is that the
15 variability in the Patriots data and the Colts data
16 are the same, and that the t-test, for example, was
17 carried out with what's called a pooled variance.
18 So you are assuming that the Colts' data is as
19 variable as the Patriots' data and you use that.

20 Now, if you do that, then you get a p-value a
21 little bit above five percent. It's about six and a
22 half percent. Interestingly, you can do that test
23 without imposing that assumption. You can do the
24 comparison and use the variability in the Patriots
25 data to estimate the variability and the uncertainty

1 in the Patriots average drop. You can use the
2 Colts' data to estimate variability in the Colts
3 average drop.

4 And if you do that, the p-value that you
5 calculate under this Case 1 adjustment is actually
6 below two percent. So it remains statistically
7 significant at the five percent level. And that's,
8 frankly, consistent with what we were saying.
9 Timing helps to explain the results we see at
10 halftime, but it's not the whole story.

11 And similarly, if you take Case 2 which is
12 making a larger adjustment, the reported p-value's
13 in the neighborhood of .2, a little bit above .2.
14 Again, if you do the analysis without imposing an
15 equal variances assumption, you get a p-value that's
16 below ten percent. So it's statistically
17 significant at the ten percent level, not at the
18 five percent level.

19 The other important point in thinking about
20 statistical significance is that it's not a black or
21 white line at .05. And there's no direct way that
22 you can connect .05 certainly to a legal standard
23 for preponderance of evidence. So it's not that if
24 you are .04, it's more likely than not, and if you
25 are .06, it's less likely than not. We have to be

1 clear about that. So for all of those reasons, I
2 think that first finding is without foundation.

3 Q. I think this is the last question. Is it
4 fair to say that what Dean Snyder purported to do is
5 not really a statistical significance analysis to
6 look at the likelihood of chance explanation the
7 variation, but introduce into his analysis one of
8 the potential explanations for the deviation?

9 A. What we didn't do is we didn't go back. As I
10 said, we went back to the halftime data and looked
11 for a time effect there. We didn't see it. We
12 didn't alter the halftime data and reanalyze the
13 data based on assumptions that we weren't in a
14 position to validate.

15 And I think that, you know, the conclusion
16 that we came to in part is that, you know, the
17 arithmetic doesn't add up. If you look at the first
18 Patriots' measurement, whether it's made by the logo
19 gauge or the non-logo gauge, the very first one,
20 it's higher than the last four Patriots' footballs,
21 which are being measured at least three minutes,
22 probably later.

23 And so the actual, if you look at the
24 sequence of Patriots' measurements, and this is the
25 point we make in the report, it's going exactly in

1 the wrong direction compared to what we know to be
2 the timing effect. And so the timing effect goes in
3 the wrong direction. The ball conditions that we
4 tested experimentally we know can affect the
5 measured pressure by no more than about .3 psi.

6 And yet, you are seeing differences in
7 pressure that go well beyond -- they go opposite the
8 timing effect and they go well beyond what's
9 attributable to differences in wet versus dry balls.

10 Q. And did you also review a commentary or
11 criticisms by either AEI and Professor MacKinnon
12 with respect to the Exponent work?

13 A. Yes.

14 Q. And do you have any responses or reactions to
15 the observations or commentary made by each of those
16 reports?

17 A. They are similarly without foundation.

18 Q. And why?

19 A. Can we take them in turn?

20 Q. Yes, please.

21 A. The AEI report which has already been
22 discussed, I mean, I would really try to amplify
23 what's already been said about the AEI report.

24 Q. Please.

25 A. The notion that we made a mistake and we made

1 an error, what's been characterized in the media as
2 a freshman statistics mistake, is just wrong. The
3 mistakes that AEI attributes to us, in fact, are
4 theirs. They weren't able to replicate our results.

5 The first part of their report says we can't
6 reproduce our results. They misidentified the
7 statistical model we were using. We weren't using a
8 multiple regression model. We were using what's
9 called a linear mixed effects model.

10 They were ultimately able to replicate most,
11 but not all of our estimates. I spent a little time
12 with that report and I finally figured out what
13 their mistake was. They couldn't match our
14 estimates of gauge effects.

15 And the reason was that when they were
16 thinking about gauge effects, they were taking the
17 average -- the simple answer is that they were using
18 a weighted average to estimate gauge effects, and
19 they should have been using an unweighted average.

20 What do I mean by that? Their estimates of
21 gauge effects were looking at the average of all the
22 fifteen measurements that were taken by each gauge.
23 Now, eleven of those were Patriots' measurements and
24 four of them were Colts' measurements. But we had
25 to consider the possibility of team effects in the

1 data.

2 And statistical theory tells us that if you
3 have got a model that has both team effect and gauge
4 effect, to properly account for the team effects,
5 the way you estimate the gauge effects is not to
6 average all of the data because you got more
7 Patriots data than Colts data, because that's how
8 the halftime measurements were done.

9 What you have to do is calculate an average
10 for each gauge for the Patriots. And, for example,
11 for the logo gauge, you have to calculate the logo
12 gauge average for the Patriots and you have to
13 calculate the logo gauge for the Colts, get those
14 two averages and then take the averages of averages.

15 And had AEI done that, they could have
16 replicated our results. Other statisticians
17 understood what we were doing and effectively were
18 able to replicate our results. So that point was
19 wrong.

20 We talked earlier about the fact that they
21 then go on to present findings purporting to show
22 that if the logo gauge was used pre-game, that you
23 can again get a p-value above .05. Well, first of
24 all, that's a limited victory in that doesn't really
25 speak to the "more likely than not" legal standard.

1 But if you look at their model, as
2 Dr. Caligiuri pointed out, the way they got there is
3 to include an order effect, which is essentially the
4 same order effect that we went back and put into the
5 model and said it's not statistically significant.
6 Not only is it not statistically significant, but
7 the coefficient for that term doesn't make physical
8 sense.

9 The order coefficient that they have in the
10 model is positive and they are looking at pressure
11 drop and how does pressure drop change. And so
12 their model, the order effect that they put in,
13 which has the -- the order effect that they put in
14 basically is saying that pressure drop should
15 increase with time.

16 And again, that doesn't make physical sense
17 because the balls are getting back to equilibrium
18 and the pressure drop from where you started
19 pre-game should be getting closer. What happens if
20 you remove that order term? Well, as Dr. Caligiuri
21 mentioned, and I think it's worth emphasizing, if
22 you take out that nonsignificant order effect, guess
23 what happens to the p-value? It drops below .05
24 again, and it basically renders void the claim that
25 you can get -- you can get nonsignificant results

1 depending on which logo gauge is used. And so I
2 think those are the main points that I think I
3 wanted to make in response to the AEI report.

4 I think Dr. Caligiuri tackled the other part
5 of the AEI report on the misinterpretation of the
6 Ideal Gas Law. And with regard to Dr. MacKinnon, I
7 think the only comment that's probably worth
8 emphasizing is that he was citing evidence that
9 there was a lot of measurement error.

10 In fact, I think Dean Snyder referred to
11 measurement error. As Dr. Caligiuri pointed out,
12 when we studied the gauges, the gauges don't always
13 read the same thing; we know that from the halftime
14 data. One gauge may read higher or lower than
15 another. And we studied 50 gauges made by the
16 same -- essentially they were the same in
17 manufacturer to the non-logo gauge.

18 They don't all read the same from one
19 another. We didn't read any that read as high as
20 the logo gauge did. Most of them were pretty
21 well-calibrated to the master gauge. But if you
22 were using that gauge repeatedly, you got consistent
23 measurements at those nominal pressure levels.

24 And so if you are looking at differences and
25 you are using the same gauge to make measurements of

1 said in the report. In terms of explaining, if we
2 ask the question what factors can we vary that have
3 the greatest impact on the ball pressure that we
4 measure, if the ball is in a dynamic state in that
5 the ball is either warming or cooling, that the
6 timing of measurement is very important.

7 Q. Okay. So that was a way of saying "yes,"
8 correct? I'm trying to move this along. You agree
9 timing was a very important factor, right?

10 A. Well, I would just like to put it in the
11 appropriate context.

12 Q. I know, but we are here very late, so if you
13 can answer "yes," "yes" would be good.

14 Let me go to the next thing. Take a look at
15 your Appendix A. This is your statistical model
16 that you presented to the world, correct?

17 A. Yeah. Well, this is the model that explains
18 how we conceived of analyzing the halftime data.

19 Q. There is no other statistical model presented
20 in Appendix A? There's only one, correct?

21 A. In terms of the general structure of the
22 model, yes, that's right.

23 Q. So there is not an Appendix B, C? This is
24 the model you presented, this one-structured model,
25 right?

1 difference, you are getting a good measure of
2 difference. So if you are looking at, if you are
3 using one gauge pre-game and you are using that same
4 gauge at halftime, you are getting a pretty accurate
5 measure of what the pressure drop was.

6 So the notion that differences in pressure
7 drop could reflect gauge measurement error is simply
8 not supported by the extensive experimentation that
9 we did and reported in our report.

10 Q. Was there anything in the AEI report or the
11 MacKinnon commentary that made you question the
12 tests undertaken by Exponent or the conclusions
13 reached by Exponent?

14 A. No.

15 MR. REISNER: No further questions.

16 MR. KESSLER: I will try to keep this short
17 and simple.

18 CROSS-EXAMINATION BY

19 MR. KESSLER:

20 Q. Despite how complex I think this testimony
21 was, Mr. Steffey, you agree, do you not, that you
22 found that timing was an important factor? I think
23 you said "very important factor" in your direct
24 testimony?

25 A. In -- well, I think I would stand by what we

1 A. Correct. We've presented that as the
2 structure with which we used to analyze the halftime
3 data under multiple scenarios about the data
4 themselves.

5 Q. Okay. This one-structured model that you
6 chose to present as your only structured model in
7 this appendix and in the entire report, okay, has no
8 timing variable in it, correct? That was testified
9 by Mr. Caligiuri, right? There's no timing variable
10 in this one-structured model that you chose to
11 present, correct?

12 A. We didn't put it in the final form of the
13 model because we put in a term to account for
14 timing. And found it wasn't significant for the
15 halftime data as recorded.

16 Q. Okay. So you didn't put it in? That's
17 another way of saying "yes," right? It's not in
18 there, right? I will get to why you didn't put it
19 in. Would you just give me it's not in the model?

20 A. There's no term in there that says time
21 effect or order effect.

22 Q. And when you say, "There is no term," there
23 is no statistical variability in your regression
24 analysis that would have time as a factor affecting
25 the dependent variable, correct?

1 **A. That's correct. And just for --**
 2 **Q.** "That's correct" will be good.
 3 **A. I am referring to the equation that's about a**
 4 **third of the way down on Page A3.**
 5 **Q.** And that's the only equation you present for
 6 your structured model, right? There's no other
 7 equation I'm missing in Appendix A that does have a
 8 timing variable, right?
 9 **A. Well, there's another version of that**
 10 **equation that's got a lot of Greek letters in it**
 11 **later on, and that's for the more technical readers.**
 12 **But there's no other equation either in prose or in**
 13 **symbols that have a timing effect in it. That's**
 14 **addressed in the footnote.**
 15 **Q.** Even if I could understand the more technical
 16 one, I won't find any timing variable in that in
 17 Appendix A, right?
 18 **A. That's correct.**
 19 **Q.** Okay, thank you.
 20 Now, you then said the reason you didn't put
 21 in a timing variable is because you found it was
 22 statistically insignificant, and that's what your
 23 Footnote 49 says, right?
 24 **A. That's correct.**
 25 **Q.** Now, it's completely the opposite of

1 inconsistent, right?
 2 **A. That's right. And one thing to keep in mind**
 3 **is that the experimental results that we generated**
 4 **used balls that were at the same starting pressure.**
 5 **Q.** Now, let me ask you this. You mentioned that
 6 you tried to replicate Dr. Snyder's work, correct?
 7 You believed you were able to do that?
 8 **A. I believe I was able to do that.**
 9 **Q.** And you pointed out that by doing some
 10 variability analysis for the second measure, you
 11 could achieve a statistical significance that's
 12 above ten percent statistical level, not a five
 13 percent, right?
 14 **A. The p-values I calculated were between five**
 15 **and ten percent.**
 16 **Q.** It would not be significant at the
 17 five-percent level, right?
 18 **A. That's correct. And again, the statement**
 19 **applies only to the difference in mean pressure**
 20 **drops and isn't addressing the anomalous**
 21 **fluctuations that are in the Patriots halftime data.**
 22 **Q.** It is true, is it not, that Exponent chose in
 23 this analysis to make five percent the relevant
 24 statistical significance level? That's Exponent's
 25 choice, correct?

1 everything else you found, that timing was the most
 2 significant variable to conclude that it also is a
 3 statistically insignificant variable; is that
 4 correct or not?
 5 **A. I'm not sure I followed the last part of**
 6 **that.**
 7 **Q.** Okay, let me try again.
 8 **A. Try again.**
 9 **Q.** You did all this work that said timing was
 10 the most significant variable affecting ball
 11 pressure in your analysis?
 12 **A. Yeah, mm-hmm.**
 13 **Q.** And then you are saying the reason you didn't
 14 put timing into the analysis is because when you
 15 tested ball order, you found it was an insignificant
 16 variable, correct? That's what you testified?
 17 That's what Footnote 49 says, right?
 18 **A. Yes. I think what Footnote 49 is pointing to**
 19 **is an inconsistency between the results that we**
 20 **demonstrated experimentally, which were consistent**
 21 **with physical theory and the observed pattern in the**
 22 **halftime data. They don't match.**
 23 **Q.** Right. So your halftime data analysis does
 24 not match with all the other studies you did that
 25 said that timing was significant? The results are

1 **A. Well, yes. I think as others have testified**
 2 **earlier, that is a standard level to use as a**
 3 **threshold for statistical analysis.**
 4 **Q.** And you would agree with that, correct?
 5 **A. Well, yes, that's the threshold that I**
 6 **instinctively applied.**
 7 **Q.** Professor Marlow agreed with that, who was
 8 supervising you?
 9 **A. I think we were in general agreement with**
 10 **that.**
 11 **Q.** No one disagreed and said let's use ten
 12 percent? Everyone said let's use five percent?
 13 **A. It's a common threshold and to use it in**
 14 **evaluating halftime data was reasonable.**
 15 **Q.** And, in fact, five percent is the measure
 16 that Exponent uses in almost all the statistical
 17 studies as a matter of practice; isn't that correct?
 18 **A. As a matter of practice. I would just**
 19 **qualify that by saying remember, in a real problem**
 20 **where you have to make a decision, there is not**
 21 **necessarily a huge difference between .045 and .055.**
 22 **That's something that you have to think about as a**
 23 **practical, real-world decision-maker.**
 24 **Q.** You mentioned civil cases in which you have
 25 testified, right?

1 **A. Yes.**

2 **Q.** And you talk about the preponderance of
3 evidence there, correct?

4 **A. Correct.**

5 **Q.** Okay. Are you familiar with the fact from --
6 how many cases have you testified in?

7 **A. At trial or in depositions?**

8 **Q.** In any way, trial?

9 **A. Trial, a handful of times; maybe 30**
10 **depositions.**

11 **Q.** Are you familiar with the fact that even in
12 the civil case with a preponderance of evidence like
13 here, if the Court finds that you haven't met a
14 relevant level of statistical significance, what
15 happens to the study; does it get admitted into
16 evidence or is it excluded from evidence, in your
17 experience?

18 **A. I don't think I can answer that as a general**
19 **proposition. And you have to think about the**
20 **context in which we were doing this analysis. We**
21 **did this analysis very early in the study. We were**
22 **looking at whether the mean pressure drop was**
23 **statistically significant. We also looked at**
24 **whether the variability between the Patriots'**
25 **measurement and the Colts' measurement were**

1 **statistically significant.**

2 **And the other thing that is known in general**
3 **statistical practice is that if you have a finding**
4 **of non-significance and that finding is based on a**
5 **relatively limited amount of data, you have to be**
6 **somewhat cautious about taking that as evidence of**
7 **no difference, because when statisticians encounter**
8 **that situation, what they think about is what they**
9 **call the power.**

10 **They are saying, well, do I have enough data**
11 **so that if the difference actually existed and it**
12 **was appreciable in magnitude that I would have**
13 **enough data, that I would have a high probability of**
14 **detecting that?**

15 **And so, findings of non-significance have to**
16 **be treated, especially in situations with small**
17 **sample sizes, with a little bit of circumspection as**
18 **opposed to findings of significance.**

19 **If you get a finding of significance with a**
20 **small amount of data, that's generally an indication**
21 **that you have a pretty strong effect and it's strong**
22 **enough to manifest itself even with a relatively**
23 **limited amount of data.**

24 **Q.** Small data sets are less reliable than big
25 data sets, correct?

1 **A. I don't think I said that.**

2 **Q.** Is that true?

3 **A. You have to put that statement in context.**

4 **Q.** Is it true, yes or no? How about answering
5 that? Before giving me the explanation for why, is
6 it true that, in general, small data sets are less
7 reliable than bigger data sets?

8 MR. NASH: Objection.

9 COMMISSIONER GOODELL: He asked you a
10 question. Answer the question.

11 **A. You have to explain what you mean by**
12 **"reliable." If you are making a decision based on**
13 **whether or not an effect is significant and you do**
14 **an analysis with a small data set and that effect is**
15 **still significant, then your data set was small, but**
16 **it was large enough for you to discover that effect**
17 **and make a decision on it. And having more data**
18 **wouldn't affect the decision you make.**

19 **Now, if you are trying to estimate something**
20 **to a certain margin of error, is it true that you**
21 **get a smaller margin of error if you have more data?**
22 **Well, yeah, it is. Is that important or not? I**
23 **think it depends on the context.**

24 **Q.** Is this one of the smallest data sets you
25 have ever worked in on any of your statistical

1 analyses in all the cases you have testified in? Is
2 this one of the smallest ones?

3 **A. No, I wouldn't say it stands out as being**
4 **exceptionally small. It is small. Obviously, four**
5 **observations for the Colts isn't that many, but it's**
6 **certainly, you know, there is information there.**

7 **Q.** I will ask you this: Have you ever done a
8 case you can recall where you had four observations
9 was your entire data set and that's all, or less?
10 And if you can't identify, "no."

11 **A. I have reviewed evidence that has been put**
12 **forth where people have taken one or two**
13 **measurements and tried to reason on that basis.**

14 **Q.** And you think that's a proper thing for a
15 statistician to do with one or two observations?

16 **A. Typically, it is not. Typically it is not**
17 **because there is uncertainty. But if you had a**
18 **situation where there was no variability, you had a**
19 **population that had no variability in it and you**
20 **wanted to learn about that population, one**
21 **measurement would be enough because there is no**
22 **variability.**

23 MR. KESSLER: I don't have any further
24 questions. You can keep going if you want, but I'm
25 done.

1 MR. REISNER: Professor Steffey, one
 2 question.
 3 REDIRECT EXAMINATION BY
 4 MR. REISNER:
 5 Q. Is there any statistical principle that
 6 requires the inclusion or introduction of the type
 7 of timing variable described by Dean Snyder in order
 8 for a statistical significance analysis to be valid?
 9 A. Well, no, especially not in this context. I
 10 guess I would respond in two ways. We were doing
 11 that analysis before we did a lot of transient
 12 experiments where we understand exactly what the
 13 magnitude of the timing effect was.
 14 And the second thing is, I think there are
 15 flaws with the approach to adjustment for timing
 16 that Dean Snyder and his team did. They basically,
 17 as near as I can tell, just altered the Colts' data
 18 by shifting all the numbers down and didn't really
 19 address the time that elapsed in the Patriots'
 20 measurements, and frankly, the anomalies in the
 21 Patriots' data when you look at it sequentially.
 22 And when we first looked at variability and
 23 we said, gee, when we look at the variability in the
 24 Colts halftime measurements and the Patriots
 25 halftime measurements, although the Patriots' data

DIRECT/MARLOW/REISNER Page 439

1 is more variable than the Colts, it's not
 2 statistical significant, that might be because of
 3 small sample sizes for the Colts.
 4 But then we did the experiments and we
 5 understood the importance of timing and we looked at
 6 that data again, looking at the sequential nature of
 7 the Patriots' observations and said, look, we can't
 8 explain this, either by timing or ball conditions.

9 MR. REISNER: Nothing further.

10 MR. KESSLER: Nothing further from me.

11 MR. REISNER: We call Professor Dan Marlow.

12 THE WITNESS: Thank you.

13 MR. REISNER: Last witness.

14 COMMISSIONER GOODELL: Welcome.

15 DANIEL MARLOW, called as a witness,
 16 having been first duly sworn by a Notary Public of
 17 the State of New York, was examined and testified as
 18 follows:

19 DIRECT EXAMINATION BY

20 MR. REISNER:

21 Q. Can you please state your name for the
 22 record.

23 A. Daniel R. Marlow.

24 Q. And how are you employed, sir?

25 A. I am a Professor of Physics at Princeton

1 University.

2 Q. What is your current title at Princeton?

3 A. I am the Evans Crawford 1911 Professor of
 4 Physics.

5 Q. How long have you been at Princeton?

6 A. 31 years.

7 Q. And other than your current position, have
 8 you held any other positions at Princeton
 9 University?

10 A. I was department chair.

11 Q. During what period of time were you
 12 department chair?

13 A. 2001 to 2008.

14 Q. When you refer to "department chair," which
 15 department are you referring to?

16 A. The physics department.

17 Q. Professor Marlow, do you have any areas of
 18 particular emphasis of academic research and
 19 expertise?

20 A. Yes. I'm an experimental particle
 21 physicists.

22 Q. What does that mean?

23 A. Well, particle physics studies -- it's also
 24 called subatomic physics. It studies the
 25 constituents of matters, the interactions between

DIRECT/MARLOW/REISNER Page 441

1 them. This is research we do at the Large -- right
 2 now, the experiment I'm working on is at the Large
 3 Hadron Collider at CERN.

4 Q. And to what extent is the discipline of
 5 statistics relevant to your work?

6 A. It's quite relevant. We don't study
 7 statistics, per se, but we depend on statistical
 8 analyses a lot in our work.

9 Q. And what was your role with respect to the
 10 analyses, experiments and other work done by
 11 Exponent in this case?

12 A. Well, one way to describe it is, I guess I
 13 was the designated skeptic. I looked over what
 14 Exponent was doing. I thought about the problem a
 15 lot myself, just probed when they did an analysis, I
 16 would do it myself.

17 When they made measurements, I would look at
 18 the data, say, does this make sense? Does this
 19 agree with what I would expect from theory? And
 20 then I also spent a lot of time thinking about
 21 things that weren't included, trying to think about
 22 that.

23 Q. How frequently did you interact with
 24 Exponent?

25 A. It was roughly once a week, maybe sometimes a

1 little bit more, sometimes a little bit less during
2 the, you know, main, most intensive part of the
3 investigation.

4 Q. And can you just describe the form in which
5 those interactions took.

6 A. Well, there were mostly phone calls where
7 Exponent would come and report what they had
8 observed. Usually there would be a document that
9 preceded the phone call. I would spend some time
10 studying it. Again, I would do my own calculations
11 to see does this make sense, you know, does this
12 look like solid work?

13 Q. And what role, if any, did you play in the
14 development by Exponent of the statistical
15 significance model they used?

16 A. Well, I took a much simpler approach, which
17 gave it essentially equivalent results. Again, and
18 there is a lot of confusion on this point, it was
19 never an intention to do anything other than to say
20 are we wasting our time here by even looking at
21 this?

22 If we had found initially that there was no
23 difference between the Patriots' and the Colts'
24 balls, speaking for myself, I would say forget about
25 it. There's just no point in studying this further.

1 But we found a large statistical significance.

2 Q. And what role, if any, did you play in the
3 development of the transient experiments and
4 game-day simulations used by Exponent?

5 A. Well, that was more along the lines of
6 looking at what they did. Before -- before any
7 measurements were made, I had actually realized that
8 this transient effect would be potentially
9 important.

10 What I didn't know basically was how quickly
11 the footballs would warm. But I thought that was
12 something we definitely had to look into, and it
13 turns out it was an important effect.

14 Q. Did Exponent share data with you in the
15 course of their experimentation?

16 A. Absolutely.

17 Q. And did you discuss that data, its
18 significance, and follow-up that should take place?

19 A. Yes.

20 Q. Do you have a view with respect to the
21 appropriateness of the statistical significance
22 model and analysis used by Exponent?

23 A. For the purpose that it was put to, it was
24 fully appropriate.

25 Q. And do you have a view as to the

1 appropriateness of the transient experiments and the
2 game-day simulations used by Exponent?

3 A. Yes.

4 Q. What is your view?

5 A. Perfectly good. I was, especially with the
6 simulation experiments, I was, frankly -- "amazed"
7 may be overstating it, but I was highly impressed
8 with the level of detail, thought, planning and
9 execution. It was really a first-class piece of
10 work.

11 Q. Did you review the report prepared by
12 Exponent?

13 A. I did.

14 Q. And did you review carefully both the
15 substance of the report and the conclusions set
16 forth in the report?

17 A. Yes, I went through it. There were a couple
18 of drafts. I went through all of them and looked at
19 it for, obviously, for any mistakes, and then also I
20 was looking is this presented in the clearest
21 possible way?

22 Q. And do you have a view as to the conclusions
23 reached by Exponent as set forth in its report?

24 A. Yes.

25 Q. What is your view about their conclusions?

1 A. I believe the conclusions are correct. And
2 there are uncertainties, but those are very clearly
3 laid out in the report. And we talked earlier about
4 these transient curves, the Figure 28. And I think,
5 I know it could be difficult for people to ponder
6 graphs and try to understand what they mean.

7 But if one takes the trouble, then it's quite
8 clear. I think that captures not only the central
9 result, but also the uncertainties.

10 Q. Were you here during the testimony of
11 Dean Snyder?

12 A. Yes.

13 Q. Did you hear his description of his three key
14 findings or criticisms?

15 A. Yes.

16 Q. Directing your attention to his first key
17 finding or criticism, "Exponent's statistical
18 analysis of the difference in average pressure drops
19 is wrong because it ignores timing."

20 Do you have a reaction or response to that
21 criticism?

22 A. Well, there were never any claims that timing
23 was in it. There was a lot of confusion on this
24 point. But it's -- how do I put this? I think it's
25 quite clear what Exponent did, what the philosophy

1 **of the analysis is. And I don't understand how**
 2 **people have so much trouble understanding that.**

3 **Q.** And directing your attention to key finding
 4 or criticism number 2, "Exponent improperly draws
 5 conclusions based on variability and halftime
 6 pressure measurements despite conceding that the
 7 variability is statistically insignificant."

8 Do you have a response or reaction to that
 9 criticism?

10 **A. Yeah. It's a kind of very pedantic,**
 11 **technical point. And it also, again, misses the**
 12 **basic point. The reason that first result is not**
 13 **statistically significant, I point out it is**
 14 **actually -- it's very suggestive. There is a pretty**
 15 **clear effect there.**

16 **It just doesn't quite rise to this or synch**
 17 **to this .05 level, but that doesn't prove it's not**
 18 **there. And you can look at other data and that's**
 19 **essentially what Exponent did, is they looked at**
 20 **their simulation data. And what struck me was in**
 21 **all the data sets I looked at, they all consistently**
 22 **had a much lower variability than what we saw in the**
 23 **Patriots' balls.**

24 **Q.** And directing your attention to key finding
 25 or criticism 3, "If the logo gauge was used to

1 **A. No.**

2 **Q.** And have you had an opportunity to review
 3 each of the AEI reports and the MacKinnon report
 4 that were described earlier?

5 **A. Yes.**

6 **Q.** And after reviewing the commentary on those
 7 reports, did that affect your views with respect to
 8 the appropriateness of the work done by Exponent or
 9 the conclusions reached by Exponent?

10 **A. No.**

11 MR. REISNER: Nothing further.

12 CROSS-EXAMINATION BY

13 MR. KESSLER:

14 **Q.** I will try my best -- so far I have been
 15 failing -- to try to ask questions. If you can just
 16 answer very simply without explanations, I hope you
 17 will try to work with me.

18 **A. As long as you don't editorialize.**

19 **Q.** You are an expert in experimental particle
 20 physics?

21 **A. That's correct.**

22 **Q.** Will you agree with me that the Exponent
 23 report is not -- doesn't have anything to do with
 24 experimental particle physics? Will you give me
 25 that?

1 measure the Patriots' balls before the game, then
 2 eight out of eleven were above Exponent's expected
 3 outcome."

4 Do you have a reaction or observation,
 5 reaction or response to that criticism?

6 **A. Well, I think, as has been pointed out, there**
 7 **was a lot of discussion of the logo versus non-logo**
 8 **gauge. I think there's ample evidence that the**
 9 **non-logo gauge is what was used. This business of**
 10 **whether or not it was corrected is such a tiny**
 11 **detail.**

12 **I mean, obviously, if you say the logo gauge**
 13 **was used, then it's not a small correction, but it's**
 14 **a tiny correction if you say the non-logo gauge is**
 15 **used. And furthermore, that analysis ignores**
 16 **something that everyone agrees on, and that is that**
 17 **as the balls warm up, their pressure goes up. So**
 18 **it's just a little bit off topic.**

19 **Q.** In other words, it freezes the balls at the
 20 outdoor measurement?

21 **A. Freezes the balls, yes.**

22 **Q.** And based on the criticisms or findings
 23 described by Dean Snyder, did it affect your views
 24 with respect to the appropriateness of the work done
 25 by Exponent or the conclusions reached by Exponent?

1 **A. There are common techniques.**

2 **Q.** Does it have anything to do with experimental
 3 particle physics as a science?

4 **A. No.**

5 **Q.** Thank you.

6 Second point, you stated with respect to the
 7 first criticism that there was never any claim made
 8 that timing was included in the statistical model in
 9 Appendix A. That's what you just stated, right?

10 **A. Well, let me speak for myself. I never saw**
 11 **that particular test as having anything to do with**
 12 **timing. I think there is confusion on this point.**

13 MR. LEVY: You may continue.

14 THE WITNESS: Okay.

15 **A. There is confusion on this point and that is**
 16 **because there's this large variability in the**
 17 **Patriots' balls, you don't see a timing effect. You**
 18 **expect to see them rise, but they don't rise. And**
 19 **if they didn't have this variability, you would see**
 20 **it. Now, that's Part 1.**

21 **Part 2 is there's another effect which is you**
 22 **can't really get from the halftime measurements by**
 23 **themselves. And that is the time at which the**
 24 **Patriots' balls are measured and the times at which**
 25 **the Colts' balls were measured.**

1 **And that is discussed in the report, but that**
 2 **comes from reconstructing what went on during that**
 3 **period in halftime when they were measuring. So no**
 4 **statistical model is going to tell you what that is.**

5 **Q.** I will try again. Is it correct, as you
 6 stated, that there was never any claim made that
 7 there was any timing variable in the statistical
 8 model that is set forth in Appendix A?

9 MR. REISNER: Objection.

10 **A. Well, I will try again. I will try again.**
 11 **There is some inclusion of a statistical -- a time**
 12 **effect in the statistical model, but it's only there**
 13 **to look for a rise in the balls during the Patriots'**
 14 **measurements. It's not there to look for the**
 15 **difference between the Patriots' and the Colts'**
 16 **balls.**

17 **Do you understand this now?**

18 **Q.** Yes, I do.

19 **A. Good.**

20 **Q.** There is no timing effect to account -- to
 21 try to account for whether that was a factor in the
 22 differences between the Patriots and the Colts'
 23 balls, correct?

24 **A. That's correct.**

25 **Q.** Okay, good.

1 Now, the next one, you said that -- you
 2 concede that there was no statistically significant
 3 effect for the variability analysis, correct, at the
 4 five-percent level?

5 **A. If you only look at the halftime data, yes.**

6 **Q.** Okay. You didn't look at the post-game data,
 7 right?

8 **A. I did.**

9 **Q.** You did look at the post-game data?

10 **A. I did.**

11 **Q.** Did you do a study of that?

12 **A. Yes.**

13 **Q.** Did you report it in your report anywhere?

14 **A. No, because we didn't want to use the**
 15 **halftime data or the post-game data to speak to the**
 16 **mean. However, since you asked, I did do the**
 17 **analysis. It's not in the report. The reason it's**
 18 **not in the report is because of potential**
 19 **uncertainties with it.**

20 **However, any uncertainty I can think of, and**
 21 **I will ask you to think of an uncertainty, or you**
 22 **(indicating), so think of an uncertainty that would**
 23 **lead to a smaller variance in the data, and there**
 24 **are none. So if you include that, then suddenly**
 25 **this variability becomes statistically significant.**

1 **Q.** Who made the decision to leave out the
 2 post-game data? Did you participate in that
 3 decision?

4 **A. Yes. I expressed my opinion and I was**
 5 **overruled.**

6 **Q.** So others decided not to include it, but you
 7 wanted to include it?

8 **A. That's correct.**

9 **Q.** In any event, it's not there, correct?

10 **A. It's not there.**

11 **Q.** Looking just at the halftime data which you
 12 did include, there is no statistically significant
 13 effect, correct?

14 **A. That's correct.**

15 **Q.** Now, you then said even though it's not
 16 statistically significant, you used the word, it's
 17 "suggestive." Do you remember using that word?

18 **A. Yes.**

19 **Q.** Okay. Is "suggestive" a scientific term
 20 recognized by any statistician? Is that a
 21 scientific term, "suggestive"?

22 **A. Well, it's a term in plain English. And I**
 23 **can tell you how we use it in science. If you see**
 24 **something where an effect is suggested, you pursue**
 25 **it, all right. So you say, look, we have this data**

1 **set. There is some suggestion here that something**
 2 **is going on. And we do this all the time at CERN.**

3 **And you can bet your bottom dollar -- you can**
 4 **bet your bottom dollar that if you see a suggestion**
 5 **of an effect in data, you are going to look very**
 6 **hard for other data to see whether or not you are**
 7 **right. Sometimes the other data shows that you are**
 8 **wrong; other times it doesn't. But the notion that**
 9 **because this is insignificant, well, forget about**
 10 **it, is just silly.**

11 **Q.** It's just silly?

12 **A. Yes. If you say because this is not**
 13 **significant, we will never look anyplace else,**
 14 **that's just silly.**

15 **Q.** Didn't you just testify on direct examination
 16 that you set up the exercise on the difference
 17 between the differences and that if it was not
 18 statistically significant, your decision would be
 19 there would be no point to doing anything further?

20 Did you testify to that, yes or no?

21 **A. Yes.**

22 **Q.** Was that silly?

23 **A. No, and there is a reason, if you will let me**
 24 **explain.**

25 MR. KESSLER: I have no further questions.

1 COMMISSIONER GOODELL: Let him finish,
2 please.
3 **Q.** Explain, explain.
4 COMMISSIONER GOODELL: There is no reason to
5 be disrespectful to any witness.
6 **Q.** I'm sorry. I apologize for that.
7 **A. I can explain. If you hadn't seen a mean**
8 **shift, then there would be no point in going on, all**
9 **right. However, we did see a mean shift, so we said**
10 **look, we have to understand why this happens. Then**
11 **we look at this variability. The variability data**
12 **in the rest of the experiments' measurements that**
13 **Exponent made comes for free. So if you get free**
14 **data, of course, you look at it.**
15 COMMISSIONER GOODELL: Okay. Were you done,
16 Mr. Kessler?
17 MR. KESSLER: I don't have any other
18 questions for this witness.
19 MR. REISNER: Very, very briefly.
20 REDIRECT EXAMINATION BY
21 MR. REISNER:
22 **Q.** Dr. Marlow, the variability analysis that
23 took into account the post-game data that you wanted
24 to include in the report but didn't get included in
25 the report, your view that wasn't included in the

1 report would have been more prejudicial to the
2 Patriots, correct?
3 **A. Yes, yes, and that was part of how I**
4 **interpreted why I was overruled is we didn't want to**
5 **be too aggressive in it. We were trying to be fair.**
6 **Q.** In your view, based on the variability and
7 analysis, taking into account the post-game data
8 would have made it more likely that the Patriots'
9 balls did not start at the same psi level when they
10 were introduced on the field and after Walt Anderson
11 had gauged them, correct?
12 **A. Yes. The very -- the most natural**
13 **explanation for the variability is that they started**
14 **at different pressures, yes.**
15 **Q.** And is it fair to say that this was not
16 included in the report because there was a consensus
17 between you and Exponent that it was better to take
18 a conservative approach and not use the post-game
19 data because it might open you up to some criticism,
20 much of which we have heard today?
21 **A. Yes, that's fair. That's why I went along,**
22 **but I couldn't contain myself here; I'm sorry.**
23 MR. REISNER: Nothing further.
24 MR. KESSLER: I'm going to resist any
25 temptation to ask any further questions at this

1 point.
2 MR. LEVY: All right.
3 MR. KESSLER: Thank you.
4 MR. LEVY: Thank you. We are done for the
5 day. I understand that the parties are going to
6 consult and agree on a proposed due date for
7 post-hearing briefs. The Commissioner will agree to
8 any schedule that's reasonable.
9 In your briefs, the Commissioner would like
10 you to address the question of whether he should
11 hear from Mr. McNally and/or Mr. Jastremski before
12 resolving the issue, before deciding the matter.
13 MR. KESSLER: Other than that question, you
14 have indicated that we should address the legal
15 issues. Can we limit our briefs to that rather
16 than, you know, arguing what happened in the factual
17 record today and all that, or would it be helpful
18 for you to have that as well? Post-hearing briefs
19 are -- I want to find out what would be useful to
20 the Commissioner for his decision.
21 MR. LEVY: Recognizing there are 25 people
22 who are here that would like to leave, why don't I
23 ask the two of you to consult, see if you can come
24 up with an agreement on that. And I am happy to
25 participate.

1 MR. NASH: That makes sense.
2 MR. KESSLER: Okay.
3 MR. LEVY: Thank you all for your patience.
4 COMMISSIONER GOODELL: Thank you.
5 (Hearing adjourned at 8:27 p.m.)
6
7 I, JOSHUA B. EDWARDS, a Notary Public for and
8 within the State of New York, do hereby certify that
9 the above is a correct transcription of my
10 stenographic notes.

Joshua B. Edwards

JOSHUA B. EDWARDS, RDR, CRR
Registered Diplomate Reporter
Certified Realtime Reporter

\$	102 [1] - 125:24	118:14, 119:1,	1333 [1] - 2:21	1:00 [1] - 149:2
\$5,512 [1] - 26:19	104 [2] - 78:5, 126:15	119:14, 120:20,	136 [2] - 237:17,	1:07 [1] - 149:3
\$50,000 [1] - 45:1	105 [3] - 94:13, 127:2,	121:15, 122:9,	252:12	1:08 [1] - 132:6
0	144:19	122:22, 122:23,	139 [1] - 5:15	2
0.3 [1] - 355:18	1050 [1] - 3:21	161:25, 163:7,	14 [5] - 238:25,	2 [28] - 43:5, 111:9,
0.4 [1] - 355:18	106 [1] - 129:10	184:6, 187:9,	258:15, 298:3,	111:19, 160:13,
00067 [1] - 104:12	107 [2] - 129:21,	216:17, 216:20,	298:10, 416:7	176:10, 176:11,
001584 [1] - 333:8	130:19	216:22, 217:14,	143 [1] - 5:15	177:23, 180:11,
00206 [1] - 104:13	108 [1] - 131:8	218:2, 218:11,	15 [16] - 26:2, 28:3,	199:21, 222:13,
004 [1] - 417:16	109 [2] - 132:17,	218:20, 238:11,	36:2, 47:22, 116:13,	273:8, 273:9,
04 [1] - 420:24	133:22	240:9, 240:14,	132:19, 214:3,	299:24, 316:5,
045 [1] - 433:21	10:18 [1] - 236:7	293:5, 293:7,	214:4, 214:7,	327:1, 327:16,
05 [12] - 165:8, 165:19,	10:26 [1] - 130:25	293:11, 293:16,	214:11, 214:21,	361:11, 363:15,
166:20, 166:24,	10:54 [1] - 144:22	294:6, 374:23,	214:24, 225:3,	365:18, 367:19,
175:23, 420:21,	11 [5] - 99:6, 129:22,	375:17, 378:13,	233:24, 410:16,	415:12, 420:11,
420:22, 424:23,	129:24, 130:5,	397:17, 397:20,	416:8	420:13, 446:4,
425:23, 446:17	208:21	398:21, 398:25,	150 [1] - 5:16	449:21
055 [1] - 433:21	11-minutes-and-one-second [1] - 130:10	400:10, 400:12	1584 [2] - 333:13,	2.5 [2] - 279:13,
06 [1] - 420:25	11.11 [1] - 160:24	12.6 [9] - 115:25,	333:14	399:17
067 [1] - 222:5	11.32 [1] - 184:14	116:15, 118:15,	1597 [1] - 249:15	2.6 [1] - 399:17
07 [1] - 179:13	11.49 [1] - 160:24	217:14, 218:20,	16 [23] - 13:1, 13:3,	20 [5] - 131:9, 131:11,
1	11.8 [1] - 258:24	293:5, 293:7,	52:12, 58:13, 58:14,	154:1, 353:10,
1 [34] - 102:5, 104:7,	11.87 [1] - 172:24	293:11, 364:14	58:23, 60:4, 62:24,	400:15
159:22, 174:4,	1133 [1] - 3:3	12.7 [5] - 114:19,	92:22, 93:18, 93:20,	200 [1] - 3:10
174:6, 174:12,	115 [4] - 97:15, 97:16,	114:19, 116:15, 117:9,	93:22, 94:1, 116:11,	2000 [2] - 47:17,
176:13, 180:11,	98:8	116:15, 117:9,	118:19, 142:18,	113:20
197:18, 197:22,	11:23 [1] - 100:1	120:20, 364:14	277:21, 278:13,	2001 [1] - 440:13
198:9, 198:25,	11:38 [1] - 100:1	12.8 [3] - 114:19,	397:4, 397:7, 397:9,	20036 [3] - 2:21, 3:4,
214:2, 214:4, 214:7,	11:45:16 [1] - 134:6	116:15, 117:9	397:25, 398:25	3:22
214:11, 214:22,	12 [20] - 50:4, 59:11,	12.9 [2] - 116:15,	1639 [1] - 139:6	2006 [10] - 12:2, 50:10,
221:24, 262:25,	59:25, 75:13, 77:15,	120:20	168 [1] - 226:2	64:4, 64:6, 65:3,
263:9, 272:2, 299:9,	118:21, 118:23,	12.95 [2] - 161:23,	16th [1] - 62:11	65:9, 66:12, 97:19,
327:1, 327:12,	125:6, 129:3,	293:13	17 [1] - 401:12	113:25, 412:17
333:23, 361:6,	172:16, 173:1,	1285 [1] - 3:16	174 [3] - 253:13,	2008 [1] - 440:13
365:17, 414:16,	173:2, 239:21,	12:36 [1] - 149:3	255:12	2009 [2] - 24:8, 119:22
415:11, 417:18,	364:15, 375:10,	12th [4] - 191:7, 192:4,	177 [2] - 248:2, 254:5	2010 [1] - 119:22
417:24, 420:5,	375:11, 378:8,	192:10, 319:22	17th [1] - 62:13	2013 [1] - 54:24
449:20	397:23, 399:12,	13 [37] - 12:25, 59:11,	18 [4] - 103:12,	2014 [17] - 12:13, 52:5,
1,500 [1] - 338:1	399:24	59:25, 62:24, 73:6,	236:20, 337:5,	52:13, 54:24, 99:6,
1.1 [1] - 173:2	12.17 [14] - 187:9,	73:19, 94:11,	401:12	102:20, 102:21,
1/19/2015 [1] - 94:16	187:10, 216:1,	116:16, 116:21,	18th [2] - 105:12,	103:2, 103:8,
10 [4] - 131:2, 172:2,	216:9, 216:24,	118:21, 119:10,	306:24	103:10, 104:16,
242:6, 357:17	217:4, 217:24,	120:20, 126:5,	19 [5] - 125:11,	112:21, 113:20,
10.1 [4] - 238:22,	218:19, 364:10,	126:12, 130:22,	125:15, 129:16,	124:3, 245:23,
239:11, 239:15,	364:11, 364:18,	134:4, 172:23,	353:14, 401:12	333:23
241:22	375:20, 376:1	193:17, 193:18,	191 [3] - 197:19,	2014/2015 [1] - 135:8
10/17 [1] - 92:9	12.2 [1] - 364:9	239:22, 277:20,	359:15, 359:16	2015 [30] - 1:10, 6:2,
100 [4] - 5:15, 77:12,	12.5 [63] - 63:20, 64:1,	277:24, 278:3,	1911 [1] - 440:3	102:14, 103:2,
77:15, 153:1	65:8, 66:11, 68:3,	278:12, 278:17,	1920 [2] - 18:8, 58:18	103:8, 103:11,
10018 [1] - 2:12	113:14, 113:22,	293:13, 293:14,	194 [1] - 5:16	103:12, 104:1,
10019 [1] - 3:16	114:8, 114:11,	293:16, 293:19,	196 [1] - 156:18	104:16, 107:2,
101 [1] - 124:23	114:14, 114:22,	294:1, 294:7, 319:5,	1985 [1] - 153:7	107:5, 107:7,
10154 [3] - 1:16, 2:4,	114:25, 115:10,	319:10, 319:12,	1988 [1] - 412:17	107:10, 109:13,
2:16	115:12, 115:19,	319:15, 364:16	19th [13] - 78:9, 125:1,	111:2, 111:11,
10166 [1] - 3:10	115:21, 115:25,	13.0 [4] - 163:7, 171:3,	125:4, 126:1,	111:25, 112:22,
	116:3, 116:15,	171:20, 375:11	126:18, 127:3,	121:2, 125:11,
	116:20, 117:23,	13.1 [1] - 293:13	130:4, 133:11,	125:15, 129:16,
	118:5, 118:7,	13.5 [6] - 65:8, 113:15,	141:9, 143:15,	131:9, 131:11,
	118:12, 118:13,	113:23, 122:23,	144:22, 145:13,	
		218:2, 319:2	237:19	

140:20, 263:11, 263:23, 332:15, 337:5 203 [1] - 64:19 20th [7] - 3:3, 132:1, 132:7, 132:10, 133:11, 141:9, 143:15 21 [1] - 131:25 21st [5] - 133:23, 141:10, 143:15, 261:23, 313:2 22 [5] - 169:23, 172:18, 174:15, 204:18, 223:10 227 [1] - 5:17 23 [5] - 1:10, 6:2, 102:20, 263:11 23rd [2] - 264:12, 264:22 24 [6] - 24:7, 50:5, 69:11, 69:21, 70:23, 131:1 25 [2] - 125:5, 456:21 251 [1] - 5:17 255 [1] - 5:17 256 [3] - 239:3, 258:16, 300:4 259 [1] - 5:17 260 [6] - 298:12, 298:13, 298:23, 298:24, 299:23, 300:4 261 [1] - 5:18 266 [1] - 240:2 28 [10] - 5:5, 109:13, 313:8, 332:15, 382:23, 387:7, 403:17, 403:22, 405:17, 445:4 28th [4] - 84:20, 333:12, 333:19, 337:14 2:00 [1] - 171:5 2:10 [1] - 171:5 2:17 [1] - 194:19 2:28 [1] - 194:19 2:37 [1] - 170:15 2:38 [5] - 170:2, 170:5, 170:10, 171:4, 171:12 2:40 [4] - 170:8, 171:12, 171:16, 172:25 2:50 [1] - 171:5 2nd [2] - 333:17, 335:18	3 3 [37] - 111:7, 111:17, 126:16, 139:10, 161:11, 161:12, 161:17, 162:6, 162:8, 177:23, 180:11, 183:10, 184:21, 190:24, 215:19, 216:21, 219:16, 224:10, 279:13, 294:9, 294:11, 296:20, 296:21, 302:24, 316:2, 316:9, 355:11, 363:20, 366:10, 374:12, 377:14, 378:8, 422:5, 446:25 30 [12] - 50:3, 148:19, 153:8, 153:10, 390:14, 400:15, 410:8, 410:19, 411:1, 411:11, 418:10, 434:9 30-some-odd [1] - 399:14 300-pound [1] - 282:12 3085 [1] - 4:4 30th [1] - 248:4 31 [3] - 417:24, 417:25, 440:6 321 [1] - 5:18 34 [3] - 130:22, 132:20, 397:12 340 [1] - 5:18 3429 [1] - 367:16 3437 [2] - 222:1, 222:2 345 [4] - 1:15, 2:3, 2:15, 5:22 35 [1] - 156:7 36 [2] - 68:24, 70:18 373 [1] - 5:22 3:54 [1] - 260:24 3rd [1] - 335:19	4 4 [16] - 102:11, 107:1, 129:11, 175:21, 184:22, 192:5, 226:3, 294:9, 294:11, 296:20, 296:22, 302:24, 316:2, 316:9, 372:15 40 [4] - 50:4, 152:19, 304:17, 399:14 402 [1] - 5:22 408 [1] - 5:22	41 [1] - 353:7 411 [1] - 5:23 42 [3] - 5:8, 226:15, 236:22 427 [1] - 5:23 43 [1] - 205:19 438 [1] - 5:23 439 [1] - 5:24 448 [1] - 5:24 45 [5] - 226:9, 377:15, 378:8, 410:8, 410:19 454 [1] - 5:24 46 [1] - 28:4 47 [2] - 5:15, 134:4 48 [8] - 184:7, 220:17, 291:1, 352:23, 365:25, 372:2, 372:3 48-hour [1] - 70:23 49 [5] - 212:14, 360:11, 430:23, 431:17, 431:18 4:03 [1] - 260:24 4:42 [1] - 236:7	5 5 [8] - 102:20, 103:2, 103:8, 103:11, 104:1, 104:16, 161:11, 408:6 50 [7] - 71:7, 128:8, 220:17, 291:1, 307:13, 309:8, 426:15 538 [1] - 330:7 54 [1] - 388:8 55 [5] - 131:12, 382:23, 392:7, 402:23, 403:25 56 [2] - 299:25, 300:1 58 [1] - 129:24 5:00 [1] - 313:4 5:13 [2] - 132:7, 132:10 5:21 [2] - 129:14, 129:17 5:30 [2] - 130:4, 313:4 5:54 [1] - 345:1 5th [1] - 112:22	6 6 [18] - 101:22, 102:14, 103:2, 103:8, 103:10, 104:15, 106:23, 107:2, 107:5, 107:7, 107:10, 112:21, 162:24, 226:3, 263:23, 350:16,	355:22, 356:15 6.7 [2] - 222:8, 369:18 600,000 [1] - 342:11 61 [1] - 331:19 62 [6] - 222:19, 224:13, 224:18, 224:19, 225:1 620 [1] - 2:11 64 [2] - 354:12, 355:10 650 [1] - 351:6 66 [1] - 29:22 67 [4] - 184:6, 365:4, 365:8, 365:18 69 [1] - 333:11 6:04 [1] - 345:1 6:50 [1] - 67:8 6th [8] - 40:4, 108:24, 109:25, 110:10, 138:12, 279:10, 336:8, 336:16	7 7 [15] - 5:4, 62:3, 78:6, 111:1, 111:11, 111:25, 112:4, 140:19, 163:11, 163:12, 175:18, 175:21, 177:19, 179:13, 316:5 70 [2] - 333:6, 335:10 71 [5] - 184:6, 364:25, 365:4, 365:6, 365:18 72 [1] - 365:4 725 [1] - 4:4 73 [3] - 24:4, 249:15, 318:11 77 [2] - 91:25, 92:1 79 [1] - 92:1 7:00 [3] - 67:8, 313:3 7:04 [1] - 395:25 7:12 [1] - 395:25 7:24 [1] - 131:19 7:25 [1] - 126:1 7:27 [1] - 133:23 7:30 [2] - 67:6, 130:25 7:38 [1] - 134:5	8 8 [4] - 102:14, 166:7, 208:21, 300:21 86 [5] - 62:4, 94:8, 277:10, 277:15, 277:16 8:00 [1] - 67:6 8:21 [3] - 111:12, 111:25, 140:20 8:27 [1] - 457:5 8:33 [3] - 111:12,	112:1, 140:20 9 9 [1] - 356:24 9,900 [1] - 104:16 90 [1] - 179:13 90017 [1] - 4:4 92.3 [1] - 222:9 95 [1] - 97:18 96 [3] - 105:10, 111:5, 337:4 99 [1] - 104:15 9:28 [2] - 1:11, 6:3 9:51 [2] - 78:8, 126:24 A a.m [6] - 1:11, 6:3, 100:1, 134:5, 134:6 A2 [1] - 98:22 A3 [8] - 173:11, 198:3, 198:15, 201:15, 202:19, 203:1, 212:13, 430:4 Aaron [2] - 248:3, 254:4 ability [3] - 64:21, 193:6, 316:11 able [23] - 10:14, 13:21, 16:12, 20:5, 20:6, 20:15, 25:25, 53:14, 55:19, 98:9, 112:12, 113:3, 148:3, 173:22, 187:6, 339:6, 417:14, 418:22, 423:4, 423:10, 424:18, 432:7, 432:8 absence [2] - 223:13, 404:2 absolute [1] - 316:16 absolutely [32] - 38:21, 50:8, 75:20, 75:22, 75:25, 77:22, 80:9, 81:17, 84:2, 85:12, 85:19, 96:14, 97:1, 97:11, 141:6, 141:15, 141:19, 142:3, 142:6, 142:10, 173:9, 292:6, 296:8, 301:12, 315:13, 329:19, 341:7, 360:8, 368:3, 391:22, 443:16 absorb [1] - 55:17 abstract [1] - 220:22 abundance [1] - 157:7 academic [8] - 16:2,
--	---	---	---	---	--	--	---	--	--

151:11, 281:8, 281:23, 282:24, 283:12, 412:12, 440:18 accept [4] - 35:17, 38:7, 178:4, 308:16 accepted [3] - 304:22, 307:2, 371:12 access [6] - 87:2, 107:15, 244:6, 244:18, 321:16, 336:18 accomplished [1] - 134:18 according [11] - 40:1, 107:1, 170:25, 177:18, 184:23, 191:9, 216:16, 217:1, 236:5, 257:9, 340:24 account [28] - 173:6, 173:22, 176:9, 202:1, 203:9, 211:14, 212:16, 213:2, 214:19, 215:13, 221:11, 253:1, 327:18, 357:11, 357:15, 358:9, 358:14, 358:17, 362:20, 366:20, 373:25, 384:12, 424:4, 429:13, 450:20, 450:21, 454:23, 455:7 accounted [3] - 19:24, 414:2, 414:4 accounting [2] - 408:23, 414:5 accurate [5] - 125:8, 185:1, 217:21, 264:7, 427:4 accurately [8] - 105:24, 106:11, 253:20, 255:12, 255:20, 259:19, 409:4, 419:3 accusing [3] - 94:20, 95:6, 144:24 achieve [1] - 432:11 acknowledged [3] - 27:5, 176:17, 419:11 acknowledgements [1] - 22:18 act [2] - 266:22, 324:19 action [4] - 245:19, 245:21, 246:15, 250:8 actions [4] - 154:21,	243:1, 243:4, 245:19 active [6] - 102:13, 102:19, 104:20, 106:25, 108:17, 287:20 activities [12] - 10:16, 38:8, 38:9, 228:24, 248:20, 249:11, 273:15, 273:23, 274:3, 274:8, 310:16, 325:24 activity [2] - 170:19, 256:12 actual [13] - 105:20, 106:13, 106:16, 110:6, 116:17, 185:4, 191:2, 215:24, 247:11, 296:7, 353:4, 353:12, 421:23 add [6] - 7:3, 7:4, 122:24, 390:8, 417:25, 421:17 added [4] - 59:2, 284:25, 381:11 adding [1] - 262:4 addition [9] - 33:19, 149:23, 180:5, 184:19, 193:3, 197:5, 304:3, 306:13, 329:5 additional [15] - 50:6, 99:17, 140:15, 167:8, 167:20, 184:18, 208:23, 226:24, 227:10, 227:16, 238:8, 279:14, 279:16, 342:13, 351:23 address [10] - 28:12, 31:22, 35:24, 36:7, 36:17, 41:20, 209:11, 438:19, 456:10, 456:14 addressed [7] - 6:18, 30:6, 34:8, 39:2, 247:5, 300:4, 430:14 addressing [2] - 265:25, 432:20 adds [1] - 153:9 adequate [1] - 41:1 adjourned [1] - 457:5 adjust [3] - 174:1, 185:9, 417:6 adjusted [2] - 168:20, 175:3 adjustment [23] - 161:16, 174:7, 175:1, 175:7, 175:11, 176:9,	177:1, 177:2, 177:15, 178:18, 180:6, 185:13, 185:23, 186:9, 416:20, 416:22, 418:8, 418:15, 418:16, 418:17, 420:5, 420:12, 438:15 adjustments [4] - 157:2, 186:14, 216:12, 417:17 administer [1] - 6:23 administrative [1] - 345:17 admit [1] - 20:3 admitted [3] - 150:2, 154:18, 434:15 ADOLPHO [1] - 2:6 adopt [3] - 65:14, 176:3, 324:23 adopted [3] - 164:25, 175:25, 181:21 adopting [1] - 285:23 advance [2] - 271:20, 331:25 advanced [1] - 416:21 advantage [1] - 24:16 adverse [1] - 44:12 advice [6] - 15:7, 46:21, 46:22, 85:6, 268:4, 305:8 advise [2] - 27:18, 247:18 advised [2] - 227:2, 304:19 advising [1] - 283:3 advisors [1] - 334:12 advocate [3] - 23:20, 271:20, 323:6 AEI [25] - 188:20, 330:2, 330:18, 365:20, 368:11, 368:12, 368:14, 368:15, 368:23, 369:13, 369:20, 369:25, 370:11, 370:19, 370:24, 371:15, 422:11, 422:21, 422:23, 423:3, 424:15, 426:3, 426:5, 427:10, 448:3 AFC [39] - 33:2, 37:18, 41:7, 66:21, 67:13, 68:15, 68:17, 68:19, 69:20, 76:16, 78:9, 85:22, 94:17, 96:11, 103:11, 103:15, 103:20, 121:1,	123:1, 124:8, 124:25, 125:2, 141:20, 143:18, 155:8, 189:2, 217:3, 229:13, 229:16, 251:11, 261:17, 263:16, 288:2, 293:8, 304:10, 306:7, 327:18, 334:8, 359:1 Affairs [1] - 2:7 affect [15] - 17:14, 237:14, 269:15, 288:1, 290:12, 361:6, 363:15, 366:11, 371:15, 373:3, 416:12, 422:4, 436:18, 447:23, 448:7 affecting [3] - 357:13, 429:24, 431:10 affects [3] - 13:13, 19:5, 178:19 affirm [2] - 40:24, 41:2 afraid [2] - 43:14, 408:2 afternoon [2] - 146:4, 194:22 afterwards [1] - 43:1 age [2] - 376:25, 379:10 agent [5] - 15:13, 105:11, 332:5, 333:10, 334:13 Agents [1] - 4:3 agents [13] - 14:20, 15:8, 84:22, 86:18, 305:12, 305:15, 312:8, 313:20, 313:21, 314:7, 332:9, 332:10, 335:15 aggressive [1] - 455:5 agitated [1] - 93:1 ago [5] - 24:2, 55:13, 87:8, 117:12, 417:11 agree [38] - 17:3, 23:19, 34:19, 64:17, 97:25, 200:3, 202:16, 202:19, 205:15, 214:20, 220:14, 246:1, 248:17, 257:13, 271:15, 299:3, 312:2, 314:10, 314:17, 315:9, 337:15, 344:24, 373:21, 374:11, 374:17, 384:18, 384:23, 393:5,	393:20, 393:25, 394:10, 427:21, 428:8, 433:4, 441:19, 448:22, 456:6, 456:7 agreed [6] - 30:21, 58:10, 230:19, 343:20, 344:4, 433:7 agreement [13] - 28:19, 31:2, 31:8, 31:13, 32:4, 36:8, 344:16, 344:20, 344:22, 373:21, 374:10, 433:9, 456:24 agrees [1] - 447:16 ahead [7] - 159:8, 226:19, 227:19, 298:11, 307:11, 376:13, 404:1 air [24] - 13:11, 59:2, 59:4, 73:5, 94:6, 116:8, 116:9, 121:25, 122:24, 204:22, 248:7, 248:9, 248:18, 254:9, 273:16, 318:24, 318:25, 327:20, 328:15, 351:22, 393:10, 393:22, 404:22, 405:6 AKIN [1] - 2:19 AI [2] - 251:20, 319:25 alike [1] - 218:23 allegation [4] - 75:1, 75:2, 229:12, 230:8 allegations [9] - 74:10, 79:2, 81:12, 81:19, 81:24, 130:13, 142:5, 229:24, 322:17 alleged [1] - 91:14 allegedly [2] - 94:15, 249:10 allotment [1] - 226:10 allow [3] - 109:19, 248:9, 279:4 allowed [1] - 242:14 allowing [1] - 378:4 alls [1] - 138:23 almost [9] - 77:10, 77:12, 77:16, 92:22, 103:23, 302:1, 304:17, 316:10, 433:16 alone [2] - 23:24, 32:3 alter [3] - 51:7, 96:12, 421:12 altered [2] - 250:17,
---	--	---	---	--

438:17
alternative [7] - 157:4,
 158:3, 158:14,
 159:11, 177:20,
 180:6, 413:23
alternatives [1] -
 158:4
amazed [1] - 444:6
American [4] - 195:1,
 195:5, 195:8, 412:21
Americas [1] - 3:16
AMOONA [3] - 3:12,
 97:15, 98:22
amount [12] - 13:2,
 40:9, 52:22, 168:9,
 175:10, 342:13,
 376:10, 377:8,
 383:16, 435:5,
 435:20, 435:23
amounts [1] - 279:14
ample [1] - 447:8
amplify [1] - 422:22
amplifying [1] -
 413:10
AMY [1] - 3:18
analog [2] - 221:14,
 221:15
analyses [21] -
 151:14, 152:1,
 153:15, 156:21,
 156:22, 157:17,
 157:21, 157:22,
 157:24, 174:22,
 204:3, 204:5, 204:6,
 206:15, 206:16,
 209:13, 346:14,
 363:9, 437:1, 441:8,
 441:10
Analysis [2] - 155:14,
 412:23
analysis [182] - 15:25,
 152:5, 152:7, 153:3,
 155:14, 156:2,
 156:6, 158:22,
 158:23, 159:2,
 159:15, 160:17,
 160:19, 162:15,
 162:20, 162:21,
 163:19, 164:2,
 164:3, 165:8,
 165:10, 165:11,
 167:25, 172:5,
 172:20, 173:6,
 173:13, 173:19,
 173:20, 175:6,
 175:16, 176:25,
 177:7, 177:8,
 179:10, 179:16,
 179:18, 180:24,
 180:25, 181:21,

182:5, 183:12,
 183:21, 183:25,
 190:21, 191:18,
 195:12, 195:14,
 195:21, 196:3,
 196:19, 197:3,
 197:6, 197:23,
 198:2, 198:4,
 198:13, 198:20,
 199:3, 199:4, 199:6,
 200:2, 200:10,
 203:5, 203:11,
 203:18, 203:20,
 204:10, 204:11,
 204:13, 205:16,
 207:1, 207:14,
 207:15, 207:16,
 207:19, 207:23,
 208:14, 208:18,
 210:22, 211:8,
 211:13, 211:16,
 211:18, 212:16,
 213:3, 213:24,
 214:17, 215:6,
 215:11, 215:12,
 215:23, 216:7,
 218:5, 219:15,
 220:25, 222:4,
 223:21, 286:2,
 286:8, 296:18,
 316:12, 316:15,
 317:10, 320:6,
 348:2, 349:14,
 349:16, 349:17,
 352:17, 354:14,
 359:18, 360:2,
 360:11, 360:15,
 360:18, 361:2,
 361:22, 362:5,
 362:7, 363:3,
 363:10, 366:4,
 366:25, 367:15,
 368:2, 368:5,
 368:10, 369:19,
 369:20, 371:1,
 371:5, 371:6,
 371:11, 380:10,
 380:24, 382:8,
 382:13, 382:19,
 383:8, 388:8, 395:5,
 395:8, 395:14,
 399:15, 400:12,
 402:11, 412:25,
 413:6, 413:8,
 413:12, 413:15,
 414:17, 415:2,
 417:10, 419:5,
 420:14, 421:5,
 421:7, 429:24,
 431:11, 431:14,
 431:23, 432:10,

432:23, 433:3,
 434:20, 434:21,
 436:14, 438:8,
 438:11, 441:15,
 443:22, 445:18,
 446:1, 447:15,
 451:3, 451:17,
 454:22, 455:7
analytic [1] - 349:1
analytical [1] - 327:6
analyze [6] - 162:19,
 327:12, 349:7,
 349:9, 418:25, 429:2
analyzed [4] - 349:20,
 354:15, 378:14,
 413:20
analyzing [1] - 428:18
Anderson [29] - 34:14,
 183:18, 186:6,
 186:24, 188:4,
 216:13, 241:6,
 291:23, 292:1,
 293:17, 293:22,
 293:23, 294:1,
 294:6, 296:21,
 297:6, 297:13,
 297:21, 301:14,
 302:21, 303:7,
 304:3, 306:5, 340:7,
 359:2, 369:3, 369:9,
 376:9, 455:10
Anderson's [1] -
 303:12
ANDREW [1] - 3:22
Angeles [1] - 4:4
announced [4] -
 263:11, 264:13,
 264:21, 265:2
announcing [1] -
 261:25
anomalies [2] -
 413:21, 438:20
anomalous [1] -
 432:20
answer [41] - 10:4,
 10:24, 11:3, 11:7,
 89:18, 89:21, 99:19,
 162:9, 203:13,
 203:16, 208:1,
 209:9, 211:24,
 217:18, 220:6,
 223:17, 246:9,
 246:10, 265:12,
 265:14, 267:24,
 268:14, 268:21,
 270:1, 270:20,
 285:3, 288:4,
 295:16, 311:1,
 311:7, 341:3, 380:3,
 383:13, 385:25,

386:5, 397:7,
 423:17, 428:13,
 434:18, 436:10,
 448:16
answered [1] - 341:2
answering [1] - 436:4
answers [2] - 265:10,
 322:3
antitrust [3] - 151:21,
 152:6, 153:7
Antitrust [1] - 152:4
anxious [1] - 8:11
anyplace [1] - 453:13
anyway [6] - 96:21,
 129:9, 321:13,
 343:4, 364:18,
 384:12
apart [4] - 10:6,
 196:21, 342:9,
 351:20
apologize [5] - 262:2,
 298:8, 392:4,
 399:10, 454:6
apparent [1] - 347:5
appeal [4] - 6:12,
 32:22, 271:5, 279:3
APPEAL [1] - 1:8
appear [1] - 355:12
appearances [2] -
 7:11, 12:12
Appearances [2] -
 2:25, 3:25
appendix [10] -
 173:10, 201:12,
 203:4, 203:12,
 211:19, 211:23,
 212:4, 212:13,
 419:4, 429:7
Appendix [11] -
 202:20, 202:25,
 212:1, 212:2,
 428:15, 428:20,
 428:23, 430:7,
 430:17, 449:9, 450:8
apples [4] - 178:18,
 361:21, 372:25
applicability [2] -
 221:3, 221:4
applicable [4] - 25:24,
 219:13, 311:12,
 356:19
application [9] -
 152:7, 152:13,
 153:2, 219:16,
 220:3, 221:10,
 266:14, 288:1, 288:6
applied [8] - 22:3,
 22:23, 35:2, 152:1,
 158:7, 184:4, 433:6
applies [5] - 26:15,

220:22, 324:22,
 325:2, 432:19
apply [11] - 21:22,
 24:1, 24:20, 26:1,
 26:9, 46:14, 151:13,
 187:11, 221:16,
 233:17, 275:3
applying [2] - 216:2,
 219:24
appointed [3] - 284:1,
 348:12, 348:17
appreciable [1] -
 435:12
appreciate [3] - 148:7,
 225:19, 314:21
appreciation [1] -
 314:19
approach [11] - 42:4,
 163:15, 163:18,
 163:20, 210:3,
 348:20, 367:17,
 367:20, 438:15,
 442:16, 455:18
approached [3] -
 287:4, 327:3, 329:3
approaches [1] -
 418:23
appropriate [11] -
 21:4, 28:9, 29:5,
 40:21, 42:13,
 200:25, 264:6,
 271:3, 374:19,
 428:11, 443:24
appropriately [1] -
 203:9
appropriateness [10] -
 361:7, 363:16,
 366:12, 371:16,
 373:4, 416:13,
 443:21, 444:1,
 447:24, 448:8
approval [2] - 67:12,
 147:6
approve [4] - 50:1,
 50:25, 116:21, 147:2
approved [7] - 19:10,
 51:8, 51:14, 51:15,
 51:20, 56:6, 147:2
approximate [1] -
 376:25
April [1] - 102:14
arbitrarily [1] - 122:24
arbitrators [1] - 27:3
area [6] - 245:11,
 279:11, 285:25,
 322:8, 322:20, 347:4
areas [3] - 322:19,
 346:16, 440:17
arena [2] - 346:5
arguably [1] - 25:24

argued [1] - 188:12
arguing [1] - 456:16
argument [10] - 21:24, 22:2, 31:9, 35:18, 36:25, 37:5, 37:9, 37:10, 41:4, 43:3
arguments [8] - 21:7, 21:10, 30:2, 32:5, 33:10, 38:11, 39:6, 271:23
arises [1] - 27:22
arithmetic [1] - 421:17
Arizona [2] - 76:19, 328:12
arose [1] - 29:17
article [19] - 253:14, 255:16, 255:20, 255:22, 256:1, 256:4, 256:5, 256:6, 256:9, 257:3, 257:6, 257:9, 258:6, 259:17, 259:19, 259:20, 260:3, 260:6, 280:18
Article [1] - 28:4
articles [2] - 280:6, 290:22
articulated [1] - 18:9
as-yet [1] - 222:21
As-yet [1] - 223:8
ascribing [1] - 19:22
aside [3] - 38:11, 171:18, 182:8
aspect [6] - 14:11, 179:25, 196:6, 347:11, 348:21, 358:22
aspects [4] - 204:1, 208:16, 209:10, 347:21
assertion [1] - 268:13
assessment [3] - 267:9, 304:12, 304:24
assignment [7] - 155:3, 155:5, 155:10, 156:23, 327:3, 347:6, 348:22
Assistant [2] - 152:3, 322:16
assistant [12] - 105:2, 105:4, 105:6, 105:7, 106:3, 106:15, 108:1, 108:3, 108:8, 108:12, 332:21
assisted [2] - 195:11, 347:1
assisting [2] - 67:16, 279:16
Associate [2] - 3:6,

151:6
associated [3] - 154:24, 252:15, 254:17
associates [1] - 284:24
association [4] - 195:2, 195:5, 195:8, 412:21
Association [3] - 36:9, 36:10, 322:13
ASSOCIATION [4] - 3:3, 3:9, 4:8, 5:13
associations [1] - 412:19
assume [25] - 10:11, 10:12, 19:12, 19:13, 22:6, 44:8, 97:25, 148:12, 227:11, 236:8, 242:16, 269:11, 269:22, 293:8, 319:11, 364:5, 365:22, 368:18, 369:11, 376:7, 383:23, 386:3, 386:6, 398:15, 399:6
assumed [3] - 364:25, 371:8, 381:17
assumes [2] - 215:24, 218:5
assuming [15] - 29:4, 44:16, 44:20, 98:6, 171:6, 171:7, 174:7, 188:4, 246:25, 247:1, 372:1, 381:7, 381:9, 405:18, 419:18
assumption [19] - 39:20, 171:2, 174:19, 183:17, 183:20, 214:5, 216:6, 221:21, 221:22, 290:24, 384:24, 385:20, 391:16, 391:24, 416:10, 419:14, 419:23, 420:15
assumptions [26] - 157:4, 157:23, 158:3, 158:15, 159:11, 160:21, 179:22, 180:2, 180:3, 180:4, 180:14, 186:4, 186:5, 186:23, 188:10, 190:20, 190:22, 191:1, 193:22, 193:24, 214:16, 214:18,

368:8, 376:18, 403:2, 421:13
astounding [1] - 13:2
asymptotes [1] - 183:8
AT&T [1] - 139:16
attached [1] - 237:18
attacks [1] - 134:20
attempt [2] - 24:14, 24:15
attempted [1] - 24:10
attend [3] - 47:14, 267:7, 335:4
attendant [5] - 122:5, 123:20, 250:10, 276:13, 276:21
attendants [3] - 257:10, 258:10, 260:7
attention [30] - 101:21, 102:11, 102:17, 104:10, 106:22, 111:7, 112:20, 129:10, 133:21, 139:10, 158:5, 162:10, 192:10, 200:14, 215:18, 253:12, 298:2, 337:6, 353:7, 355:22, 356:14, 356:24, 361:10, 363:19, 373:2, 402:23, 403:1, 445:16, 446:3, 446:24
attitude [1] - 57:22
attorney [4] - 6:21, 267:16, 268:12, 271:15
Attorney [1] - 152:3
attorney-client [2] - 267:16, 268:12
Attorneys [4] - 2:10, 2:20, 3:9, 3:21
attracted [1] - 281:24
attributable [1] - 422:9
attributes [1] - 423:3
authority [11] - 15:10, 15:11, 22:22, 35:24, 36:7, 305:16, 305:19, 305:21, 305:25, 311:12, 334:17
authorization [2] - 96:11, 96:18
authorize [1] - 96:21
authorized [6] - 11:13, 31:22, 40:23, 96:15, 137:5, 275:4

autograph [2] - 83:7, 83:21
autographed [1] - 83:5
autographs [1] - 83:22
automatic [1] - 314:23
automatically [2] - 226:25, 234:15
availability [1] - 392:23
available [10] - 39:25, 40:4, 49:11, 91:8, 190:1, 191:4, 227:8, 327:8, 349:3, 393:3
Avenue [8] - 1:15, 2:3, 2:11, 2:15, 2:21, 3:10, 3:16, 3:21
average [80] - 157:20, 158:24, 160:15, 160:23, 160:25, 163:21, 163:25, 166:18, 174:17, 174:22, 177:22, 197:23, 199:20, 199:24, 200:17, 200:19, 206:1, 213:22, 354:21, 359:18, 361:25, 362:1, 382:1, 382:2, 382:25, 383:20, 387:17, 388:10, 389:1, 389:12, 389:16, 389:18, 389:19, 389:23, 390:2, 390:7, 390:8, 390:9, 390:10, 390:17, 391:19, 403:6, 403:20, 403:23, 403:24, 404:4, 404:5, 404:18, 405:11, 405:20, 405:22, 406:2, 409:21, 410:15, 410:17, 410:20, 414:7, 414:18, 415:7, 416:23, 416:25, 417:20, 417:22, 419:9, 420:1, 420:3, 423:17, 423:18, 423:19, 423:21, 424:6, 424:9, 424:12, 445:18
averages [12] - 161:15, 161:23, 163:3, 164:20, 381:25, 382:5, 382:8, 382:9, 424:14
avoid [1] - 6:9

award [1] - 152:18
aware [58] - 9:1, 9:9, 9:11, 9:16, 11:14, 13:14, 19:14, 21:12, 22:5, 22:6, 23:11, 23:21, 30:17, 31:19, 35:2, 35:7, 35:16, 36:20, 42:24, 43:2, 66:15, 73:6, 74:9, 78:1, 94:4, 96:20, 96:23, 100:25, 109:3, 109:13, 110:25, 113:13, 113:17, 117:14, 117:16, 118:24, 145:2, 145:6, 147:7, 182:10, 197:5, 238:17, 243:1, 245:22, 246:3, 246:5, 248:2, 248:20, 249:10, 250:9, 257:16, 257:17, 257:18, 273:14, 274:2, 315:18, 325:23, 332:2
awareness [4] - 9:13, 22:1, 274:9, 274:23
axis [1] - 170:1

B

baby [1] - 160:18
Bachelor [1] - 346:21
backed [1] - 341:16
background [5] - 48:11, 322:5, 346:20, 412:8, 413:4
backup [1] - 80:7
backups [1] - 71:4
backwards [1] - 173:16
bad [1] - 44:9
bag [9] - 88:14, 236:14, 236:15, 237:2, 384:7, 384:8, 384:13, 384:19, 384:20
bags [2] - 190:4, 237:3
ball [205] - 12:4, 12:20, 16:22, 17:13, 23:22, 36:19, 36:20, 41:8, 41:9, 49:7, 49:25, 50:8, 50:12, 51:25, 52:1, 52:2, 52:8, 52:20, 52:22, 53:5, 53:10, 53:13, 53:15, 53:16, 53:18, 53:25, 54:6, 54:7, 54:9, 55:3, 55:6, 55:17,

55:18, 56:5, 56:6,
56:21, 57:2, 57:5,
58:8, 59:5, 59:23,
68:11, 69:10, 70:17,
72:21, 73:19, 75:15,
77:10, 92:13, 93:2,
97:22, 100:18,
100:23, 100:24,
101:3, 101:4, 101:7,
114:1, 114:4, 114:5,
115:1, 116:8,
116:13, 116:19,
116:21, 116:22,
117:7, 119:21,
119:25, 120:2,
120:5, 120:7, 120:8,
120:9, 120:12,
120:17, 120:18,
121:4, 121:8,
121:25, 142:14,
143:3, 145:4, 145:9,
145:19, 147:21,
147:22, 161:17,
168:15, 171:21,
171:25, 172:22,
173:3, 173:4,
190:24, 191:7,
191:8, 191:13,
191:15, 192:4,
192:10, 211:15,
212:19, 213:6,
213:18, 213:24,
214:2, 214:3, 214:4,
214:7, 214:11,
214:22, 214:24,
215:2, 215:6,
217:11, 224:10,
229:21, 233:3,
233:9, 234:5, 236:6,
236:13, 237:7,
237:8, 239:15,
239:20, 239:24,
239:25, 240:4,
240:17, 240:19,
240:20, 246:11,
246:13, 250:4,
254:1, 255:6,
257:15, 257:16,
259:24, 274:18,
282:12, 292:11,
304:10, 314:13,
314:22, 319:22,
320:1, 320:3, 320:9,
328:13, 350:7,
351:7, 356:4,
360:21, 362:24,
362:25, 367:4,
378:8, 381:17,
382:7, 384:9,
384:16, 384:17,
385:5, 385:8,

385:10, 386:14,
386:18, 386:22,
386:23, 389:3,
398:14, 400:17,
401:1, 402:2,
405:25, 407:1,
407:4, 407:7, 411:2,
416:6, 418:13,
418:14, 422:3,
428:3, 428:4, 428:5,
431:10, 431:15,
439:8

ball-by-ball [1] - 382:7

ball-to-ball [4] -

212:19, 213:6,
213:24, 215:6

balloon [1] - 92:13

balls [469] - 12:16,

12:21, 12:24, 13:7,
13:10, 13:11, 16:13,
16:17, 16:20, 17:8,
17:9, 18:17, 18:23,
18:24, 18:25, 19:3,
19:5, 22:20, 24:11,
26:7, 26:16, 34:3,
34:5, 37:22, 48:15,
48:23, 49:5, 49:11,
49:15, 50:3, 50:4,
50:6, 50:18, 50:22,
50:23, 51:2, 51:24,
52:20, 53:9, 55:22,
56:8, 56:10, 56:24,
56:25, 57:10, 58:4,
58:9, 59:1, 59:2,
59:4, 59:8, 59:10,
59:20, 61:8, 62:23,
63:8, 64:1, 64:25,
65:1, 65:16, 67:12,
67:25, 68:3, 68:9,
68:19, 68:25, 69:5,
69:12, 69:25, 70:15,
70:16, 70:24, 71:7,
71:19, 71:23, 71:24,
72:4, 72:5, 72:11,
72:15, 72:25, 73:5,
74:11, 76:22, 76:25,
77:12, 77:13, 77:16,
82:4, 92:20, 93:10,
94:3, 94:6, 95:15,
113:22, 116:12,
117:7, 118:8,
118:18, 119:1,
119:23, 120:4,
121:15, 122:9,
122:22, 123:14,
144:9, 144:10,
144:14, 146:2,
147:2, 147:24,
148:2, 155:8, 159:4,
159:5, 159:12,
159:16, 160:1,

160:3, 160:8, 160:9,
160:10, 161:4,
161:5, 162:22,
162:23, 163:7,
163:12, 163:13,
163:17, 164:3,
164:4, 164:7, 164:8,
164:10, 164:22,
167:14, 167:16,
167:24, 168:4,
168:5, 168:18,
168:21, 169:21,
170:6, 170:12,
170:21, 171:1,
171:2, 171:5, 171:9,
171:11, 171:15,
174:8, 174:9,
174:17, 174:23,
174:25, 175:2,
176:13, 176:14,
176:15, 177:7,
178:13, 178:15,
178:17, 179:4,
179:7, 181:5, 181:7,
182:11, 182:16,
183:14, 183:15,
183:22, 184:1,
184:12, 185:16,
185:18, 187:17,
188:15, 189:7,
189:8, 189:10,
189:15, 190:3,
192:22, 193:2,
193:4, 193:11,
193:13, 197:8,
200:17, 200:18,
205:5, 206:11,
206:12, 211:21,
214:21, 215:4,
215:15, 215:20,
215:25, 216:4,
216:7, 216:9,
216:15, 216:20,
217:3, 217:14,
217:24, 218:2,
218:6, 218:11,
220:16, 221:5,
224:11, 229:7,
230:13, 231:3,
233:1, 233:21,
235:6, 235:12,
235:13, 235:21,
235:24, 236:15,
236:19, 236:21,
236:23, 236:24,
237:1, 238:1, 238:3,
238:9, 238:11,
238:21, 239:11,
240:9, 240:12,
241:5, 246:17,
249:5, 250:10,

253:2, 273:17,
275:20, 276:2,
276:7, 276:11,
276:15, 276:24,
277:20, 278:3,
278:12, 285:18,
287:8, 288:19,
288:25, 289:4,
289:5, 289:9,
290:24, 291:4,
291:24, 292:14,
292:19, 293:2,
293:5, 293:7,
293:10, 293:13,
293:19, 293:23,
293:24, 307:14,
307:20, 308:5,
308:9, 308:17,
309:3, 318:14,
318:15, 318:16,
318:18, 318:19,
318:20, 318:22,
318:23, 319:2,
319:14, 328:1,
328:2, 350:8,
350:22, 350:23,
352:23, 354:19,
354:21, 356:5,
356:8, 356:11,
358:7, 358:24,
359:4, 360:9, 362:4,
362:6, 362:10,
362:11, 362:20,
363:22, 364:8,
364:13, 364:15,
365:10, 365:15,
365:24, 367:5,
367:21, 367:22,
367:23, 367:25,
368:4, 368:9,
368:17, 368:18,
369:4, 369:5, 370:1,
370:3, 370:4, 372:9,
373:24, 374:25,
376:1, 378:5,
378:12, 381:7,
381:10, 382:1,
382:2, 382:3, 382:5,
382:14, 382:15,
382:16, 382:20,
382:21, 383:7,
383:18, 383:20,
384:6, 384:8,
384:10, 384:13,
384:19, 384:20,
384:21, 384:24,
384:25, 385:2,
385:13, 385:14,
386:8, 386:15,
387:1, 387:2, 387:3,
387:6, 387:12,

387:13, 387:16,
387:17, 387:20,
388:2, 388:4,
388:10, 388:12,
388:18, 388:19,
389:2, 389:9,
389:13, 389:22,
390:3, 390:4,
390:12, 390:22,
390:24, 391:8,
391:9, 391:25,
396:5, 396:11,
396:13, 398:18,
399:16, 399:18,
399:21, 399:23,
400:5, 400:24,
401:7, 401:8, 401:9,
401:12, 401:13,
401:17, 403:7,
403:8, 406:3, 406:7,
406:16, 407:1,
407:8, 407:12,
407:17, 407:18,
414:2, 414:8,
415:24, 416:2,
416:7, 416:8,
417:21, 417:22,
418:1, 418:2, 418:3,
418:9, 418:11,
422:9, 425:17,
432:4, 442:24,
446:23, 447:1,
447:17, 447:19,
447:21, 449:17,
449:24, 449:25,
450:13, 450:16,
450:23, 455:9
band [6] - 405:4,
405:5, 405:8, 405:9,
409:18, 410:2
bands [2] - 387:7,
409:23
bargaining [6] - 28:19,
31:1, 31:8, 31:13,
32:3, 334:14
base [2] - 201:10,
316:6
baseball [2] - 12:7,
56:23
Based [1] - 273:11
based [78] - 19:17,
28:8, 32:25, 41:23,
41:24, 41:25, 42:1,
42:2, 43:13, 46:21,
79:7, 114:21,
139:16, 163:3,
166:17, 208:17,
209:12, 209:13,
209:19, 209:22,
214:9, 215:15,

220:3, 222:15, 224:1, 224:5, 225:3, 225:9, 226:22, 236:11, 236:18, 242:3, 243:19, 244:19, 246:5, 247:1, 255:13, 256:4, 256:9, 274:4, 274:16, 290:23, 301:12, 303:1, 303:24, 304:12, 308:7, 308:22, 308:23, 319:14, 324:15, 327:8, 327:11, 349:3, 349:5, 352:19, 354:2, 354:6, 354:10, 354:17, 357:24, 358:11, 361:13, 362:5, 362:6, 362:21, 363:4, 391:24, 398:13, 404:17, 410:9, 417:9, 421:13, 435:4, 436:12, 446:5, 447:22, 455:6	become [7] - 43:17, 66:10, 66:15, 74:8, 113:17, 261:20, 261:21 becomes [2] - 168:8, 451:25 BEFORE [1] - 1:19 began [1] - 87:8 begin [2] - 304:25, 406:7 beginning [14] - 8:24, 108:16, 113:20, 159:19, 170:10, 183:24, 290:23, 292:17, 301:17, 383:10, 383:12, 384:2, 387:15, 398:10 begins [3] - 170:8, 182:2, 332:5 behalf [4] - 7:19, 121:20, 333:21, 344:5 behavior [4] - 44:22, 245:21, 357:4, 357:5 belief [3] - 18:2, 162:2, 181:2 believes [1] - 13:24 belonged [1] - 259:9 Belonged [1] - 300:5 Belonging [2] - 258:22, 258:24 belonging [1] - 259:5 below [21] - 11:12, 35:21, 40:9, 63:20, 121:12, 166:20, 185:19, 187:19, 238:11, 240:9, 278:17, 316:6, 364:9, 365:16, 376:1, 378:9, 378:13, 400:12, 420:6, 420:16, 425:23 belt [1] - 283:7 bench [1] - 156:10 benchmark [4] - 164:11, 166:21, 181:22, 183:13 benefit [1] - 396:9 BENJAMIN [1] - 3:12 Bernie [1] - 322:17 best [18] - 6:19, 21:2, 50:14, 208:8, 208:9, 265:20, 292:4, 292:8, 297:15, 302:22, 303:12, 323:1, 352:20, 353:4, 396:19, 417:18, 448:14	bet [2] - 453:3, 453:4 better [8] - 14:5, 14:7, 43:12, 73:18, 161:8, 170:15, 203:13, 455:17 between [71] - 34:24, 36:9, 59:11, 59:24, 67:14, 73:9, 92:4, 92:7, 104:15, 111:12, 111:25, 112:1, 113:14, 113:22, 120:20, 122:22, 130:4, 130:24, 134:25, 135:15, 139:20, 140:12, 140:20, 159:4, 159:7, 161:3, 163:24, 169:20, 171:12, 181:4, 184:6, 192:25, 197:7, 200:20, 205:4, 206:1, 206:11, 218:2, 225:2, 248:5, 266:7, 323:5, 327:20, 327:25, 328:1, 332:25, 341:4, 354:22, 354:23, 355:14, 356:11, 358:14, 362:2, 365:3, 368:17, 405:10, 407:9, 409:19, 414:8, 418:10, 418:12, 431:19, 432:14, 433:21, 434:24, 440:25, 442:23, 450:15, 450:22, 453:17, 455:17 beyond [8] - 30:9, 81:18, 227:6, 324:25, 325:10, 352:3, 422:7, 422:8 bias [6] - 309:18, 339:19, 339:22, 339:25, 340:5, 340:11 biased [1] - 340:7 big [7] - 12:17, 45:20, 186:9, 269:7, 322:18, 337:21, 435:24 bigger [2] - 162:23, 436:7 biggest [1] - 315:24 bill [1] - 279:11 billed [3] - 279:8, 279:9 billing [1] - 279:19 Bills [1] - 55:1	bills [8] - 43:21, 111:10, 111:24, 140:14, 140:18, 266:25, 279:16, 338:4 Billy [1] - 322:14 binder [2] - 298:10, 331:18 binding [1] - 46:5 BIRCH [1] - 2:6 Bird [3] - 92:5, 92:6, 92:18 bird [1] - 92:11 bit [18] - 43:7, 53:5, 168:19, 181:2, 216:21, 321:6, 349:13, 395:13, 401:13, 402:2, 410:10, 419:21, 420:13, 435:17, 442:1, 447:18 black [1] - 420:20 Blakeman [3] - 160:2, 292:23, 407:20 blame [1] - 19:22 Blandino [2] - 228:25, 229:2 blessed [1] - 284:23 block [2] - 130:2, 133:22 blown [1] - 93:10 blue [1] - 403:19 board [1] - 284:15 Board [1] - 322:15 Body [1] - 26:3 bolded [3] - 167:5, 169:19, 172:4 bolts [1] - 318:18 book [6] - 59:8, 115:11, 115:18, 119:12, 298:9 books [1] - 395:8 bordering [1] - 321:20 bore [1] - 38:20 boss [1] - 60:20 bottom [23] - 92:2, 94:21, 95:6, 105:17, 111:20, 111:21, 124:23, 129:13, 133:21, 144:25, 158:15, 162:24, 181:24, 183:11, 185:16, 188:16, 190:8, 194:2, 326:25, 333:7, 333:14, 453:3, 453:4 bottom-line [2] - 183:11, 194:2 bought [3] - 218:21, 378:18, 379:16	bouncing [1] - 316:7 bounty [5] - 26:25, 45:2, 45:16, 46:7, 46:8 Bowl [23] - 71:16, 71:20, 76:3, 76:11, 76:13, 77:3, 77:8, 77:14, 77:24, 79:21, 81:10, 84:21, 111:13, 128:20, 130:15, 133:1, 141:21, 141:23, 142:1, 142:9, 142:19, 142:21, 142:25 Bowls [3] - 47:25, 77:18, 81:5 box [2] - 127:4, 230:18 boy [6] - 36:19, 41:8, 75:15, 78:19, 78:25, 254:1 boys [8] - 54:6, 384:9, 385:5, 385:8, 386:14, 407:1, 407:4, 407:7 Brad [3] - 101:23, 102:1, 324:12 Brady [129] - 6:12, 7:19, 9:1, 10:15, 10:23, 14:4, 14:7, 15:14, 20:22, 21:25, 23:3, 29:2, 29:11, 29:24, 31:6, 31:24, 32:5, 32:13, 35:1, 35:23, 36:10, 36:22, 37:2, 37:10, 37:17, 37:19, 38:7, 38:14, 39:11, 39:15, 39:23, 40:16, 42:10, 42:23, 45:21, 47:4, 47:11, 47:13, 48:14, 50:16, 57:13, 71:9, 86:22, 86:24, 89:17, 91:10, 91:21, 97:12, 100:8, 100:10, 102:6, 104:7, 104:12, 104:13, 105:14, 124:22, 125:3, 126:3, 126:18, 129:13, 129:14, 129:22, 131:10, 131:23, 132:7, 132:18, 134:3, 139:20, 140:12, 140:15, 149:11, 249:9, 250:14, 269:20, 270:7, 270:23, 273:5, 273:7, 273:13, 273:19, 273:22,
--	---	--	--	---

274:2, 274:9, 274:17, 275:7, 275:16, 275:22, 275:25, 276:22, 276:24, 293:6, 304:9, 304:17, 305:3, 305:11, 306:4, 310:20, 311:9, 311:13, 312:15, 313:5, 314:2, 314:6, 316:24, 325:22, 326:2, 326:5, 326:7, 326:10, 326:15, 331:15, 332:1, 332:20, 334:21, 335:8, 335:15, 336:12, 336:20, 336:24, 339:3, 340:25, 341:4, 341:20, 396:15, 400:17, 401:4 BRADY [13] - 1:5, 3:21, 4:3, 4:9, 5:15, 401:3, 401:5, 401:18, 401:21, 401:25, 402:6, 402:14, 402:17 Brady's [17] - 26:12, 32:19, 39:6, 39:18, 43:10, 44:2, 44:9, 48:11, 149:19, 271:5, 279:3, 312:8, 313:15, 313:19, 331:22, 333:10, 337:8 brain [3] - 94:20, 95:5, 144:23 brand [4] - 49:9, 68:23, 69:12, 76:13 brand-new [1] - 68:23 breach [2] - 34:21, 234:4 break [34] - 49:10, 49:14, 49:18, 50:10, 52:20, 53:18, 53:19, 54:4, 54:9, 56:21, 66:24, 67:1, 68:23, 69:21, 70:24, 76:15, 77:9, 88:12, 99:22, 99:25, 148:8, 166:1, 194:15, 247:6, 260:22, 260:23, 294:13, 315:14, 317:3, 317:6, 343:20, 395:18, 395:22 breaking [5] - 56:21, 69:10, 76:12, 76:25, 88:18	breaks [2] - 52:20, 88:16 Brees [1] - 64:11 Brett [1] - 44:23 bricks [1] - 62:24 brief [8] - 28:17, 36:18, 40:2, 43:1, 127:14, 181:1, 260:22, 260:23 briefe [1] - 28:18 briefly [10] - 21:6, 84:18, 143:10, 259:14, 346:19, 358:10, 402:19, 403:4, 413:5, 454:19 briefs [6] - 21:7, 28:13, 456:7, 456:9, 456:15, 456:18 bring [9] - 93:6, 114:22, 119:3, 123:14, 128:18, 172:22, 223:11, 318:16, 346:12 brings [1] - 348:12 broached [1] - 279:21 broad [2] - 36:8, 153:13 broke [6] - 34:13, 54:1, 69:25, 77:12, 120:4, 309:12 broken [2] - 55:16, 309:7 brought [28] - 59:9, 92:16, 93:5, 115:4, 155:6, 160:8, 169:10, 169:11, 170:7, 170:12, 170:21, 171:11, 171:15, 172:23, 184:9, 189:15, 220:23, 221:1, 229:14, 229:19, 233:25, 291:4, 353:1, 387:16, 388:12, 389:4, 389:9, 390:4 brunt [1] - 57:24 brush [1] - 153:13 bucket [2] - 337:21, 352:6 buckets [3] - 332:16, 333:3, 352:5 bud [5] - 79:6, 79:10, 94:24, 95:9, 133:25 Buffalo [1] - 55:1 Building [1] - 2:11 built [1] - 328:20 bullet [6] - 38:12, 163:23, 164:1, 169:9, 169:18, 367:19 bump [3] - 168:12, 174:6, 175:20 bunch [4] - 76:21, 219:7, 328:14, 351:12 burden [2] - 31:10, 41:14 BURLING [1] - 2:10 burns [2] - 333:20, 335:11 BURNS [1] - 3:17 bus [1] - 276:20 business [4] - 16:1, 153:4, 153:25, 447:9 Business [1] - 151:5 buy [1] - 301:19 BY [33] - 1:22, 2:4, 2:12, 2:16, 2:22, 3:4, 3:11, 3:17, 3:22, 4:5, 47:9, 100:6, 139:4, 143:12, 150:12, 194:20, 227:24, 251:7, 255:9, 259:15, 261:7, 321:25, 340:19, 345:7, 373:9, 402:20, 408:4, 411:22, 427:18, 438:3, 439:19, 448:12, 454:20	378:22 California [2] - 4:4, 346:2 Caligiuri [18] - 345:2, 345:11, 345:13, 354:2, 371:14, 373:13, 373:16, 373:19, 373:20, 396:1, 402:22, 413:11, 416:5, 425:2, 425:20, 426:4, 426:11, 429:9 CALIGIURI [2] - 4:14, 5:22 Callendar [2] - 307:5, 307:12 calm [1] - 251:21 camp [2] - 55:12, 75:16 candid [2] - 306:11, 323:11 candidly [1] - 20:3 cannot [4] - 221:11, 242:10, 357:15, 358:9 capable [1] - 355:7 capacity [1] - 323:7 captures [1] - 445:8 cards [2] - 105:19, 106:12 care [4] - 110:5, 276:16, 284:12, 347:18 cared [1] - 147:12 career [7] - 48:1, 51:4, 51:6, 54:6, 58:1, 119:20, 151:11 careful [4] - 165:15, 241:19, 252:8, 349:24 carefully [4] - 184:23, 263:6, 349:18, 444:14 Carnegie [1] - 412:11 Carolina [2] - 246:13, 259:25 carried [3] - 189:11, 407:4, 419:17 case [44] - 8:16, 11:3, 24:4, 29:18, 36:6, 36:7, 36:18, 44:18, 46:8, 71:4, 97:13, 169:1, 174:4, 174:6, 174:12, 176:8, 178:9, 178:11, 187:25, 200:7, 218:14, 242:5, 242:7, 247:11, 270:4, 290:20, 290:23, 301:17, 303:17, 304:5, 317:20, 317:23, 321:16, 323:20, 342:10, 352:10, 381:1, 383:22, 383:23, 395:11, 417:18, 434:12, 437:8, 441:11 Case [6] - 176:10, 176:11, 221:24, 417:24, 420:5, 420:11 caselaw [1] - 46:21 cases [24] - 27:1, 36:5, 45:23, 154:21, 154:24, 167:7, 174:4, 188:7, 196:5, 196:6, 196:10, 196:14, 208:22, 245:6, 317:14, 322:24, 324:22, 325:2, 381:1, 381:3, 417:17, 433:24, 434:6, 437:1 cash [1] - 136:4 catch [1] - 54:5 caught [2] - 249:2, 324:18 caused [6] - 34:11, 328:5, 328:13, 329:16, 350:25, 355:14 causes [12] - 17:1, 373:23, 388:1, 388:14, 388:21, 389:6, 389:10, 389:24, 390:6, 390:21, 392:20, 408:21 causing [2] - 355:2, 396:6 caution [1] - 157:7 cautious [1] - 435:6 Cave [1] - 80:2 CBA [7] - 9:21, 28:3, 29:1, 29:8, 31:21, 36:1, 40:23 celebrity [1] - 43:11 cell [14] - 87:2, 87:5, 87:10, 87:11, 87:15, 87:17, 87:18, 87:25, 88:4, 89:10, 103:6, 109:19, 305:21, 337:10 centered [1] - 76:24 central [1] - 445:8 CERN [2] - 441:3, 453:2 certain [10] - 22:15, 40:9, 49:5, 104:25,
C		
C-A-L-I-G-I-U-R-I [1] - 345:12 calculate [4] - 420:5, 424:9, 424:11, 424:13 calculated [7] - 166:13, 364:11, 365:8, 372:21, 381:23, 418:20, 432:14 calculates [1] - 372:4 calculation [1] - 375:13 calculations [5] - 365:22, 371:3, 372:1, 375:21, 442:10 calibrated [10] - 184:25, 216:20, 218:16, 294:20, 294:24, 302:1, 302:4, 316:10, 353:18, 426:21 calibration [6] - 372:16, 372:20, 377:4, 377:6, 377:7,		

110:12, 205:10, 214:16, 315:6, 315:12, 436:20 certainly [20] - 15:17, 35:6, 36:22, 39:22, 41:3, 42:9, 99:19, 121:12, 144:12, 194:9, 215:3, 266:5, 272:25, 374:3, 378:24, 407:21, 407:23, 420:22, 437:6 certainty [4] - 40:22, 316:16, 317:16, 317:18 certified [1] - 334:12 Certified [1] - 457:13 certify [1] - 457:8 cetera [1] - 250:24 chain [2] - 18:14, 335:18 chair [4] - 295:17, 440:10, 440:12, 440:14 challenging [2] - 222:18, 223:4 championship [4] - 13:6, 114:10, 115:5, 115:8 Championship [42] - 33:3, 37:18, 41:7, 66:21, 67:13, 68:15, 68:17, 68:19, 69:20, 76:17, 78:10, 85:23, 94:17, 96:11, 103:12, 103:15, 103:20, 121:1, 123:1, 124:8, 124:25, 125:2, 125:22, 141:21, 143:18, 146:1, 155:8, 189:3, 217:4, 229:13, 229:16, 251:11, 261:17, 263:17, 288:3, 293:8, 296:19, 304:11, 306:8, 327:18, 334:8, 359:1 chance [19] - 11:17, 61:23, 76:21, 165:6, 167:10, 167:22, 207:21, 208:24, 208:25, 210:9, 210:16, 222:8, 222:9, 222:10, 287:11, 287:14, 328:3, 328:5, 421:6 change [37] - 9:18, 17:20, 34:2, 46:17, 51:13, 64:4, 64:6,	64:22, 65:15, 88:21, 88:24, 96:12, 97:19, 114:1, 114:4, 146:8, 146:19, 151:22, 158:4, 158:15, 161:15, 169:13, 174:22, 201:19, 266:15, 269:21, 288:9, 330:25, 351:6, 351:15, 352:13, 364:21, 370:13, 375:6, 381:17, 425:11 changed [6] - 89:4, 89:7, 145:25, 331:8, 401:6, 401:16 changes [1] - 356:21 changing [1] - 382:6 characterization [3] - 199:6, 202:7, 204:7 characterize [1] - 199:10 characterized [3] - 255:21, 256:2, 423:1 characters [1] - 351:24 charged [1] - 228:12 Chart [1] - 398:25 chart [1] - 409:24 charts [1] - 392:7 check [5] - 33:20, 98:2, 215:10, 283:22, 319:10 checked [6] - 35:10, 92:20, 121:24, 132:7, 157:7, 401:1 chemistry [1] - 330:15 Chicago [4] - 16:1, 150:24, 151:1, 152:15 chief [1] - 99:7 chips [1] - 153:20 choice [1] - 432:25 choose [2] - 49:22, 71:7 choosing [1] - 50:17 chose [4] - 52:18, 429:6, 429:10, 432:22 chosen [4] - 119:16, 119:17, 162:7, 165:8 Circuit [1] - 21:19 circumspection [1] - 435:17 circumstances [3] - 30:22, 357:23, 405:14 circumstantial [1] - 32:23 cite [3] - 250:13,	275:14, 275:16 cited [5] - 9:23, 15:12, 22:22, 250:19, 311:22 cites [1] - 78:5 citing [1] - 426:8 citizens [1] - 20:24 civil [5] - 31:11, 324:22, 325:3, 433:24, 434:12 claim [8] - 205:17, 285:19, 416:20, 417:5, 418:17, 425:24, 449:7, 450:6 claimed [1] - 418:7 claims [3] - 91:21, 249:20, 445:22 clarification [1] - 299:2 clarify [1] - 261:18 clarifying [1] - 264:20 clarity [1] - 290:4 Clark [1] - 152:17 class [2] - 281:9, 444:9 classes [1] - 152:12 clear [44] - 7:6, 11:5, 12:6, 22:12, 26:16, 27:23, 37:15, 41:22, 51:5, 56:17, 61:12, 72:8, 74:20, 96:9, 122:19, 125:20, 137:22, 177:5, 208:4, 221:15, 226:20, 233:14, 241:14, 241:15, 241:21, 242:1, 244:13, 280:7, 289:24, 304:16, 314:6, 314:8, 325:1, 325:10, 326:1, 336:17, 336:20, 348:19, 397:16, 399:9, 421:1, 445:8, 445:25, 446:15 clearer [2] - 413:22, 415:12 clearest [1] - 444:20 clearly [9] - 22:23, 31:2, 34:21, 35:11, 218:21, 271:9, 302:19, 445:2 Clete [2] - 251:24, 407:20 client [14] - 266:11, 266:16, 266:21, 267:15, 267:16, 268:12, 271:12, 271:16, 271:21, 284:8, 323:6,	333:21, 334:7 clients [1] - 345:23 clock [3] - 415:20, 416:9, 416:11 close [9] - 131:5, 165:19, 165:23, 166:2, 218:15, 280:11, 302:2, 418:23 closed [1] - 395:7 closer [1] - 425:19 closes [1] - 21:10 cloud [2] - 312:20, 339:7 CLR [1] - 1:23 club [11] - 22:11, 22:23, 22:24, 22:25, 23:14, 24:5, 99:7, 120:21, 120:23, 252:21 clubhouse [1] - 288:24 clubs [3] - 46:9, 46:16, 250:23 Clubs [1] - 98:14 co [5] - 152:16, 261:16, 261:19, 262:18, 310:3 co-lead [3] - 261:16, 261:19, 310:3 co-taught [1] - 152:16 coach [2] - 53:4, 332:21 Coach [6] - 142:13, 142:17, 143:2, 322:17, 326:6, 326:8 coaches [5] - 22:11, 22:25, 80:6, 99:8, 122:13 coefficient [2] - 425:7, 425:9 cold [8] - 16:18, 23:22, 234:16, 238:15, 257:8, 291:5, 292:19, 314:23 colder [2] - 169:11, 178:16 colleague [3] - 155:12, 270:3, 413:11 colleagues [6] - 29:21, 89:19, 89:22, 264:19, 264:25, 269:24 collect [5] - 19:12, 151:13, 314:12, 314:15, 323:2 collected [11] - 151:22, 151:24, 152:24, 157:14,	189:2, 219:7, 327:12, 350:1, 358:20, 358:21, 380:4 collection [1] - 153:2 collective [8] - 28:19, 31:1, 31:7, 31:13, 32:3, 291:21, 324:14, 334:14 college [2] - 47:14, 53:4 Collider [1] - 441:3 Colts [66] - 66:22, 116:16, 160:15, 160:25, 161:17, 161:23, 168:16, 180:10, 189:25, 200:20, 229:18, 229:23, 230:8, 235:12, 236:3, 236:7, 236:20, 239:19, 239:24, 239:25, 240:4, 240:12, 240:17, 287:9, 293:12, 293:15, 293:21, 294:1, 294:2, 294:4, 294:7, 295:4, 295:7, 295:25, 296:3, 297:9, 310:17, 318:21, 320:4, 350:24, 351:1, 354:23, 356:6, 356:11, 358:15, 364:15, 368:7, 375:12, 376:3, 376:8, 381:17, 382:5, 383:5, 403:19, 403:21, 419:10, 419:15, 420:2, 424:7, 424:13, 437:5, 438:24, 439:1, 439:3 Colts' [110] - 16:19, 18:23, 18:24, 33:5, 144:9, 159:5, 160:3, 160:9, 161:4, 162:23, 163:7, 163:13, 163:17, 164:3, 164:8, 164:10, 164:22, 167:14, 167:16, 167:24, 168:5, 168:18, 169:21, 171:2, 171:5, 171:21, 172:22, 174:8, 174:17, 174:23, 176:14, 176:23, 178:16, 179:7, 181:4,
---	--	--	--	--

182:11, 182:16,
189:8, 190:24,
191:10, 192:21,
193:4, 197:7,
200:18, 205:5,
206:11, 215:14,
224:9, 224:11,
236:24, 240:9,
240:18, 240:20,
289:4, 318:14,
318:15, 318:19,
318:20, 328:2,
350:23, 354:20,
358:7, 358:24,
362:6, 362:9,
362:11, 364:12,
367:21, 367:22,
367:25, 368:4,
368:9, 368:17,
369:5, 370:3,
373:24, 376:15,
381:7, 381:10,
382:1, 382:2,
382:14, 382:20,
383:7, 383:18,
383:20, 384:25,
386:8, 387:3,
387:13, 387:20,
391:9, 403:8,
409:13, 414:8,
416:1, 417:20,
418:1, 418:2, 418:3,
419:18, 420:2,
423:24, 434:25,
438:17, 442:23,
449:25, 450:15,
450:22
Columbia [12] - 280:9,
280:10, 280:13,
280:14, 280:20,
280:25, 281:1,
281:2, 281:14,
281:22, 282:18,
347:20
Columbia's [2] -
280:17, 281:7
column [7] - 160:23,
160:24, 161:1,
161:21, 330:7, 330:8
combination [4] -
8:18, 192:7, 194:7,
358:3
combinations [2] -
368:24, 369:16
combine [1] - 317:5
comfort [2] - 49:7,
317:10
comfortable [3] -
194:10, 316:18,
317:7

coming [3] - 79:2,
172:11, 293:7
comment [7] - 60:6,
248:23, 249:7,
249:13, 269:11,
399:1, 426:7
commentary [6] -
181:1, 371:22,
422:10, 422:15,
427:11, 448:6
comments [9] - 60:9,
265:17, 267:25,
268:16, 268:18,
269:5, 269:14,
413:10, 417:8
COMMISSIONER [142]
- 1:19, 6:5, 7:8,
7:18, 48:13, 49:16,
52:23, 54:12, 54:15,
54:18, 56:1, 56:9,
59:13, 59:17, 60:14,
60:18, 60:21, 60:24,
61:12, 61:15, 62:6,
62:9, 65:18, 65:21,
65:24, 66:2, 67:1,
68:15, 69:13, 69:16,
69:19, 70:4, 70:13,
70:19, 70:22, 71:1,
71:8, 71:12, 71:14,
72:8, 74:20, 80:11,
80:15, 88:7, 88:17,
88:23, 89:2, 89:14,
99:21, 99:24,
109:21, 117:3,
117:6, 117:9,
117:13, 117:16,
117:22, 117:25,
122:19, 124:18,
125:20, 128:1,
133:10, 133:16,
136:13, 136:19,
137:11, 137:14,
137:16, 145:24,
146:4, 146:7,
146:10, 146:14,
146:16, 146:18,
146:22, 146:25,
147:5, 147:10,
147:15, 147:23,
148:4, 148:6,
148:10, 148:14,
148:18, 149:1,
155:17, 155:23,
156:4, 168:7,
168:14, 168:23,
170:9, 170:14,
170:17, 170:22,
177:5, 178:1, 180:1,
180:11, 180:13,
180:17, 180:20,

189:21, 192:11,
194:18, 221:25,
225:19, 226:6,
227:19, 230:3,
230:6, 233:13,
252:2, 256:23,
257:1, 260:20,
277:15, 386:4,
396:7, 397:11,
398:3, 398:6, 399:8,
400:16, 400:20,
400:25, 401:15,
401:19, 401:22,
402:1, 402:12,
402:15, 404:1,
436:9, 439:14,
454:1, 454:4,
454:15, 457:4
Commissioner [54] -
2:5, 7:17, 22:14,
25:16, 28:19, 33:9,
40:6, 40:13, 40:20,
42:3, 45:5, 46:7,
48:12, 48:19, 48:23,
52:6, 55:25, 56:3,
62:8, 66:23, 77:1,
77:7, 78:24, 80:1,
83:9, 89:8, 90:16,
91:20, 97:17, 99:8,
99:17, 99:20,
105:12, 111:6,
145:23, 149:8,
155:22, 158:20,
168:11, 194:12,
225:21, 226:16,
228:23, 229:8,
243:17, 309:22,
309:25, 337:5,
343:7, 392:17,
395:16, 456:7,
456:9, 456:20
Commissioner's [3] -
171:18, 259:18,
396:9
committee [5] - 65:12,
65:14, 66:5, 97:18,
97:23
common [6] - 165:2,
165:3, 181:10,
181:11, 433:13,
449:1
communicate [2] -
133:6, 146:19
communicated [4] -
39:11, 125:11,
125:15, 332:2
communicating [2] -
62:18, 130:18
Communications [1] -
124:25

communications [13]
- 8:15, 84:19, 90:20,
109:7, 265:11,
266:6, 266:12,
268:11, 276:5,
332:4, 332:19,
332:24, 333:22
community [1] -
154:15
company [4] - 89:12,
307:8, 345:20,
345:22
company's [1] -
345:18
comparable [2] -
44:22, 45:8
compare [4] - 292:23,
374:20, 382:4, 419:8
compared [17] -
159:5, 160:24,
161:24, 163:5,
163:9, 172:12,
178:16, 182:11,
185:16, 193:14,
224:7, 234:16,
361:25, 379:10,
382:9, 382:20, 422:1
compares [1] - 372:5
comparing [7] -
163:16, 362:18,
372:25, 374:15,
394:4, 403:2, 403:23
comparison [5] -
182:22, 183:25,
184:17, 361:21,
419:24
compelled [4] - 8:3,
8:13, 8:24, 10:19
compensated [1] -
270:16
compensation [1] -
196:22
competition [5] -
65:12, 65:14, 66:5,
97:18, 97:23
competitive [6] -
24:15, 25:20, 46:15,
250:18, 272:5,
311:22
Competitive [4] -
24:24, 98:17, 98:24,
99:10
complained [2] -
12:19, 118:21
completely [3] - 11:7,
169:9, 430:25
complex [1] - 427:20
compliance [4] -
238:3, 238:10,
240:19, 240:22

component [2] -
199:10, 413:2
components [1] -
199:2
composed [1] -
134:22
computer [1] - 153:19
computers [2] -
128:18, 149:19
conceal [2] - 85:18,
141:17
concede [2] - 221:9,
451:2
conceding [4] - 159:6,
222:16, 361:15,
446:6
conceived [1] - 428:18
concept [3] - 164:16,
213:12, 288:8
concern [7] - 11:25,
35:3, 79:4, 135:13,
136:14, 144:12,
178:12
concerned [6] - 12:10,
136:5, 136:24,
142:4, 282:18,
282:25
concerning [1] -
310:16
concerns [9] - 135:23,
136:22, 136:25,
137:25, 138:18,
144:1, 145:18, 335:2
conclude [15] - 10:14,
11:19, 36:13, 42:10,
46:23, 167:11,
181:14, 203:22,
242:25, 292:7,
308:3, 343:9, 363:3,
393:3, 431:2
concluded [15] -
273:18, 275:11,
285:13, 291:17,
303:11, 306:16,
354:16, 357:9,
360:5, 361:2,
361:23, 363:6,
369:22, 370:15,
406:10
conclusion [44] -
8:25, 17:22, 29:5,
30:20, 34:3, 34:5,
38:5, 158:9, 167:1,
167:23, 182:23,
183:11, 185:15,
188:14, 188:18,
188:20, 188:21,
188:22, 188:23,
188:24, 210:5,
215:23, 220:1,

222:18, 223:3, 223:6, 223:22, 225:15, 238:7, 286:1, 309:4, 323:17, 354:11, 362:8, 363:13, 366:9, 369:17, 370:17, 371:25, 388:15, 388:18, 390:21, 392:24, 421:15 conclusions [71] - 8:18, 8:19, 8:23, 32:24, 41:23, 66:8, 159:8, 159:9, 165:12, 165:17, 166:4, 167:5, 176:6, 178:8, 181:23, 182:4, 189:1, 190:14, 190:19, 194:8, 201:11, 207:23, 208:14, 209:21, 210:4, 211:17, 222:14, 225:6, 267:4, 268:9, 269:17, 285:6, 285:9, 285:14, 285:15, 304:5, 316:12, 317:24, 317:25, 325:6, 326:14, 331:1, 331:8, 354:3, 354:5, 354:10, 355:9, 355:23, 356:13, 356:16, 356:25, 357:18, 358:11, 361:8, 361:13, 363:17, 366:13, 367:11, 371:17, 373:5, 416:14, 427:12, 444:15, 444:22, 444:25, 445:1, 446:5, 447:25, 448:9 condition [1] - 120:5 conditioner [4] - 53:3, 53:17, 54:9, 55:3 conditions [8] - 182:13, 352:22, 353:4, 357:23, 359:5, 366:23, 422:3, 439:8 conduct [31] - 9:6, 9:24, 25:6, 29:3, 29:11, 29:16, 31:14, 31:18, 32:2, 32:8, 32:20, 33:15, 35:24, 36:4, 36:12, 36:13, 38:15, 42:11, 42:18, 42:20, 42:24, 46:14,	201:5, 202:4, 248:13, 263:14, 305:25, 322:7, 326:16 Conduct [3] - 9:22, 22:16, 25:4 conducted [16] - 23:13, 29:3, 30:24, 101:10, 157:24, 197:9, 204:15, 209:12, 244:13, 255:3, 263:19, 264:3, 272:3, 309:19, 327:11, 358:23 conducting [6] - 264:9, 270:17, 272:9, 322:6, 338:20, 357:1 confer [2] - 6:24, 342:18 conference [3] - 142:14, 142:24, 309:17 confession [1] - 95:19 confidential [3] - 280:16, 280:23, 344:17 confidentiality [3] - 282:23, 344:2, 344:3 confirm [1] - 304:3 confirmed [1] - 306:18 confirming [1] - 334:9 confirms [1] - 332:11 conflating [1] - 32:6 conflict [1] - 323:5 confused [3] - 300:15, 325:15, 402:9 confusion [7] - 241:10, 402:24, 403:15, 442:18, 445:23, 449:12, 449:15 connect [1] - 420:22 Connecticut [1] - 3:21 connection [19] - 85:22, 104:9, 110:13, 110:17, 196:18, 196:22, 197:1, 197:2, 198:19, 203:4, 261:16, 279:23, 309:22, 310:2, 310:22, 311:4, 312:24, 347:23, 366:18 connects [1] - 154:14 conscious [1] - 283:14 consensus [1] -	455:16 conservative [1] - 455:18 consider [20] - 31:6, 32:16, 37:13, 38:3, 40:15, 177:20, 180:6, 183:16, 191:3, 207:11, 267:15, 280:2, 330:1, 344:14, 348:11, 366:17, 368:4, 377:1, 377:3, 423:25 consideration [2] - 14:2, 416:15 considered [14] - 30:3, 30:6, 30:13, 33:11, 33:25, 180:9, 182:21, 192:18, 207:12, 315:18, 333:24, 335:12, 367:8, 374:3 considering [3] - 31:25, 32:15, 180:5 consist [1] - 8:12 consisted [1] - 199:2 consistency [5] - 27:7, 27:9, 27:12, 46:24, 117:1 consistent [21] - 26:24, 27:3, 41:4, 41:13, 44:1, 45:17, 147:24, 157:9, 188:11, 249:11, 294:9, 301:24, 302:24, 370:17, 375:22, 375:23, 403:13, 404:5, 420:8, 426:22, 431:20 consistently [12] - 162:4, 186:15, 187:12, 216:2, 220:11, 294:25, 316:8, 355:13, 355:17, 355:21, 367:5, 446:21 consolidate [1] - 395:18 constantly [1] - 43:14 constituents [1] - 440:25 constituted [1] - 155:16 Constitution [1] - 28:5 constrained [1] - 386:13 consult [2] - 456:6, 456:23 consultancy [1] -	155:18 consultant [2] - 103:4, 283:5 consulted [2] - 156:12, 156:14 consulting [8] - 152:11, 153:12, 156:19, 195:14, 195:17, 195:20, 281:25, 345:22 consumer [1] - 346:15 contact [8] - 51:2, 90:24, 122:17, 131:5, 131:6, 280:23, 281:16, 313:5 contacted [2] - 280:17, 281:12 contacts [2] - 37:20, 91:2 contain [2] - 320:22, 455:22 contained [1] - 330:13 contains [1] - 34:9 contemporaneously [1] - 306:23 content [11] - 90:18, 107:17, 110:18, 110:22, 112:8, 112:13, 112:17, 338:2, 338:5, 338:7, 338:8 contents [1] - 269:4 context [22] - 8:13, 10:19, 32:16, 39:13, 40:17, 41:6, 41:11, 52:7, 61:23, 62:14, 92:25, 121:5, 121:11, 135:14, 138:21, 163:22, 277:2, 428:11, 434:20, 436:3, 436:23, 438:9 continue [7] - 66:24, 66:25, 181:23, 226:19, 321:22, 402:2, 449:13 continued [5] - 2:25, 3:1, 3:25, 4:1, 181:19 continues [2] - 164:13, 164:14 continuing [1] - 372:13 continuously [4] - 397:18, 398:1, 398:4, 398:5 contract [4] - 28:4, 36:1, 36:3, 334:12 contracts [1] - 90:21	contrast [3] - 181:6, 181:7, 239:19 contribute [1] - 356:20 contributing [5] - 348:3, 350:10, 357:14, 362:9, 370:14 contributions [1] - 355:24 control [14] - 164:4, 164:5, 164:12, 164:21, 167:15, 167:16, 167:17, 167:18, 178:12, 189:9, 192:24, 193:5, 367:22, 368:8 controlled [1] - 190:10 controls [4] - 167:24, 367:22, 367:25, 368:5 conversation [8] - 63:13, 78:11, 78:15, 79:8, 118:16, 264:2, 275:22, 275:23 conversations [8] - 76:4, 76:8, 76:14, 76:24, 81:19, 124:7, 130:24, 131:4 converse [1] - 388:22 conversion [14] - 185:3, 185:21, 185:23, 185:25, 186:1, 186:8, 186:17, 187:7, 187:11, 219:25, 220:11, 221:20, 372:8, 375:16 conversions [1] - 185:14 convert [8] - 184:24, 185:8, 185:25, 372:12, 372:15, 372:25, 375:14, 375:16 converted [2] - 185:24, 372:21 convince [1] - 41:12 convincing [3] - 7:22, 325:2, 325:10 cooling [1] - 428:5 cooperate [10] - 14:14, 37:1, 37:8, 37:11, 38:21, 44:25, 45:4, 86:17, 312:5, 312:16 cooperated [2] - 39:23, 39:24 cooperating [2] - 338:14, 341:25
---	--	--	--	--

cooperation [7] - 15:15, 44:14, 44:16, 44:21, 45:11, 45:14, 45:18
cooperative [1] - 341:5
copies [4] - 100:16, 138:12, 138:15, 225:24
copy [12] - 64:19, 98:12, 98:19, 98:23, 115:18, 124:12, 124:13, 139:6, 198:23, 262:23, 262:24, 350:13
core [11] - 162:20, 204:10, 204:13, 207:14, 207:15, 207:20, 211:25, 212:2, 275:15, 286:18, 345:18
corporate [1] - 346:1
correct [304] - 6:10, 12:13, 23:5, 27:18, 46:18, 71:20, 73:17, 73:23, 86:3, 87:19, 93:20, 101:17, 101:19, 102:6, 102:9, 102:21, 102:24, 103:12, 103:17, 103:21, 104:1, 106:4, 106:8, 106:20, 107:2, 107:12, 107:13, 107:19, 107:25, 108:4, 108:13, 108:18, 108:22, 110:14, 110:23, 110:24, 112:2, 113:15, 114:1, 114:9, 118:5, 118:12, 119:14, 121:4, 121:9, 121:15, 121:18, 123:3, 128:12, 136:10, 138:13, 139:23, 139:25, 140:24, 143:19, 145:15, 166:25, 183:2, 187:6, 195:9, 195:10, 195:12, 195:18, 195:22, 195:25, 196:19, 196:23, 197:10, 197:16, 197:24, 197:25, 198:13, 202:21, 202:25, 204:23, 207:16, 207:18, 214:3, 214:15, 214:24,

215:2, 216:9, 216:25, 217:25, 218:3, 218:4, 220:4, 221:13, 221:17, 221:18, 222:5, 222:11, 224:2, 224:16, 226:13, 228:20, 229:8, 229:9, 234:3, 234:8, 234:21, 234:25, 235:3, 235:7, 235:15, 235:22, 236:8, 236:9, 236:12, 237:15, 238:12, 238:17, 239:4, 239:7, 239:8, 239:12, 239:13, 239:22, 239:23, 240:2, 240:3, 240:9, 240:10, 241:1, 241:2, 241:7, 241:8, 242:7, 245:9, 250:22, 250:25, 251:1, 256:6, 256:13, 256:16, 256:17, 257:5, 257:12, 258:5, 258:13, 258:21, 260:5, 263:7, 263:24, 264:4, 264:7, 269:23, 270:5, 270:8, 271:10, 272:10, 272:11, 273:3, 273:21, 274:18, 274:25, 276:6, 277:3, 277:6, 285:10, 285:11, 285:20, 285:21, 286:9, 286:11, 288:19, 288:25, 289:1, 289:6, 289:7, 289:11, 289:21, 289:23, 290:15, 292:2, 292:5, 292:6, 295:24, 295:25, 296:1, 296:8, 296:25, 297:8, 297:10, 297:11, 297:14, 297:17, 299:18, 300:18, 301:12, 302:7, 303:13, 303:25, 304:5, 306:16, 307:21, 307:22, 307:24, 309:19, 309:20, 309:23, 313:8, 313:9, 315:3, 315:7, 315:13, 319:18, 320:23, 321:13, 323:16,

333:12, 339:13, 340:22, 341:8, 341:12, 341:20, 341:21, 341:23, 342:21, 351:24, 351:25, 359:2, 359:3, 359:7, 359:9, 359:10, 359:13, 359:14, 361:23, 362:12, 364:12, 364:21, 366:8, 367:12, 367:13, 375:3, 376:17, 376:19, 376:20, 378:17, 380:8, 387:4, 390:19, 392:8, 392:10, 392:11, 392:15, 394:15, 395:6, 396:3, 396:13, 396:18, 396:22, 398:11, 398:16, 399:20, 400:23, 404:15, 405:12, 405:13, 406:12, 408:18, 408:21, 409:4, 410:14, 413:25, 414:11, 414:14, 428:8, 428:16, 428:20, 429:1, 429:8, 429:11, 429:25, 430:1, 430:2, 430:18, 430:24, 431:4, 431:16, 432:6, 432:18, 432:25, 433:4, 433:17, 434:3, 434:4, 435:25, 445:1, 448:21, 450:5, 450:23, 450:24, 451:3, 452:8, 452:9, 452:13, 452:14, 455:2, 455:11, 457:9
corrected [2] - 308:15, 447:10
correcting [2] - 157:3, 220:12
correction [4] - 187:15, 216:3, 447:13, 447:14
correctly [8] - 159:15, 183:21, 220:10, 241:12, 256:2, 263:7, 373:14, 401:24
correspond [2] - 171:20, 417:21
correspondence [1] -

226:16
Cortez [1] - 24:5
cost [1] - 342:5
costless [1] - 87:4
COUNCIL [4] - 2:15, 2:20, 4:13, 5:20
counsel [20] - 7:5, 11:1, 29:25, 86:19, 104:9, 110:7, 110:13, 110:21, 111:1, 140:10, 140:23, 256:3, 270:18, 321:1, 321:7, 321:11, 331:23, 395:9, 395:12
Counsel [4] - 2:17, 3:5, 3:6, 266:7
counsel's [1] - 410:5
count [3] - 196:5, 196:11, 226:8
counted [1] - 196:16
counterintuitive [1] - 360:17
country [1] - 16:3
couple [11] - 124:9, 133:4, 145:24, 222:12, 261:24, 293:25, 318:4, 352:24, 416:24, 418:6, 444:17
course [16] - 9:19, 49:13, 57:7, 57:13, 129:23, 134:22, 152:21, 152:22, 152:25, 153:11, 154:3, 154:17, 156:13, 157:2, 443:15, 454:14
Court [1] - 434:13
court [7] - 6:6, 7:6, 211:6, 284:1, 284:3, 348:12, 348:17
court-appointed [3] - 284:1, 348:12, 348:17
cover [3] - 98:10, 98:11, 168:10
covered [4] - 94:9, 94:12, 151:18, 163:23
covering [2] - 91:20, 289:17
covers [1] - 89:9
COVINGTON [1] - 2:10
Crawford [1] - 440:3
create [2] - 12:12, 55:18
created [1] - 403:10

creative [1] - 26:8
credibility [6] - 13:24, 304:13, 304:20, 304:25, 338:17, 339:7
credible [2] - 13:16, 242:25
credit [2] - 190:7, 338:24
Cremieux [1] - 155:13
criminal [3] - 31:10, 151:21, 151:22
critical [5] - 37:3, 37:13, 39:9, 185:19, 187:18
critically [1] - 175:22
criticism [36] - 198:1, 198:6, 198:12, 203:8, 219:16, 221:16, 221:24, 324:18, 359:17, 359:21, 359:24, 361:6, 361:11, 361:18, 363:14, 363:20, 363:25, 366:10, 368:21, 370:23, 371:13, 374:11, 380:24, 381:19, 414:16, 414:21, 414:22, 416:15, 445:17, 445:21, 446:4, 446:9, 446:25, 447:5, 449:7, 455:19
criticisms [6] - 359:12, 368:15, 414:14, 422:11, 445:14, 447:22
criticizing [1] - 330:24
CROSS [7] - 100:6, 194:20, 251:7, 321:25, 373:9, 427:18, 448:12
cross [11] - 20:11, 20:17, 165:9, 165:19, 194:16, 270:7, 270:17, 270:22, 343:8, 343:17
Cross [2] - 5:14, 5:21
CROSS-EXAMINATION [7] - 100:6, 194:20, 251:7, 321:25, 373:9, 427:18, 448:12
cross-examination [4] - 20:11, 20:17, 270:17, 343:17
cross-examine [1] -

343:8
cross-examining [3] - 270:7, 270:22
crossed [1] - 115:9
CRR [2] - 1:23, 457:12
crunching [1] - 185:12
CRUTCHER [1] - 3:20
cubic [1] - 393:22
current [5] - 150:17, 228:4, 261:12, 440:2, 440:7
curve [16] - 171:24, 172:1, 182:19, 182:20, 183:5, 183:7, 352:14, 372:20, 372:21, 382:10, 382:12, 403:5, 404:19, 405:11, 405:20, 409:20
curves [4] - 198:10, 225:4, 417:19, 445:4
custody [1] - 18:14
custom [1] - 105:18
cut [2] - 265:1, 369:23
cycle [1] - 383:12
cycled [1] - 351:5

D

D'Qwell [1] - 191:8
D.C [2] - 2:21, 3:4
daily [1] - 83:14
damp [2] - 407:21, 407:23
Dan [3] - 97:25, 247:18, 439:11
Daniel [3] - 191:11, 192:12, 439:23
DANIEL [3] - 2:22, 4:14, 5:24
Daniels [2] - 191:12, 192:11
Darden [1] - 151:3
dare [1] - 18:3
darn [1] - 303:20
Darrel [1] - 258:19
Data [1] - 412:4
data [173] - 151:13, 151:14, 151:22, 151:24, 151:25, 152:6, 152:7, 152:13, 152:24, 153:2, 153:3, 153:14, 153:20, 153:23, 157:14, 157:15, 158:3, 159:20, 159:25, 160:5, 160:22, 161:7, 161:8,

161:13, 161:14, 162:5, 162:6, 162:7, 162:10, 166:10, 187:24, 189:2, 190:23, 190:25, 191:2, 191:3, 192:14, 192:18, 192:19, 192:24, 193:7, 193:23, 193:25, 208:14, 209:13, 215:2, 223:14, 224:2, 224:4, 224:14, 225:8, 283:4, 284:5, 289:11, 289:16, 303:23, 314:12, 315:15, 316:17, 318:7, 318:12, 320:9, 327:8, 327:12, 329:21, 337:13, 349:3, 349:7, 349:24, 350:1, 354:14, 354:15, 354:18, 358:20, 358:21, 361:4, 361:25, 362:7, 362:18, 363:5, 367:2, 368:7, 370:18, 372:22, 378:23, 382:11, 382:25, 386:12, 394:22, 403:17, 403:18, 404:5, 404:6, 404:11, 404:18, 413:16, 413:19, 413:20, 413:21, 415:6, 415:11, 415:15, 415:16, 417:3, 418:16, 419:7, 419:15, 419:18, 419:19, 419:25, 420:2, 421:10, 421:12, 421:13, 424:1, 424:6, 424:7, 426:14, 428:18, 429:3, 429:15, 431:22, 431:23, 432:21, 433:14, 435:5, 435:10, 435:13, 435:20, 435:23, 435:24, 435:25, 436:6, 436:7, 436:14, 436:15, 436:17, 436:21, 436:24, 437:9, 438:17, 438:21, 438:25, 439:6, 441:18, 443:14, 443:17, 446:18, 446:20,

446:21, 451:5, 451:6, 451:9, 451:15, 451:23, 452:2, 452:11, 452:25, 453:5, 453:6, 453:7, 454:11, 454:14, 454:23, 455:7, 455:19
date [10] - 40:4, 92:8, 106:25, 107:7, 107:11, 108:17, 302:14, 334:9, 338:4, 456:6
dated [4] - 105:12, 332:15, 333:17, 333:22
dates [2] - 102:13, 102:19
Dave [15] - 59:7, 59:12, 60:15, 61:1, 94:19, 95:4, 119:2, 122:11, 122:16, 144:23, 145:2, 145:6, 238:6, 252:20
DAVID [1] - 3:11
David [1] - 241:25
days [21] - 58:5, 59:13, 59:15, 59:16, 122:5, 123:9, 133:5, 133:13, 133:20, 252:21, 261:24, 282:6, 282:7, 286:25, 300:8, 306:25, 316:4, 316:5, 316:6, 417:10
DC [1] - 3:22
de [1] - 179:22
deal [7] - 45:20, 98:10, 156:23, 269:7, 313:21, 314:7
dealing [3] - 192:6, 262:10, 313:16
dealings [1] - 75:17
deals [1] - 90:22
dealt [3] - 14:9, 49:20, 153:14
dean [10] - 153:25, 154:2, 154:3, 154:12, 171:10, 194:1, 229:2, 363:20, 418:15
Dean [40] - 15:23, 16:1, 150:18, 150:24, 151:3, 151:6, 151:8, 160:13, 188:25, 190:19, 194:22, 194:23, 207:9, 228:25, 290:19,

326:20, 359:9, 359:11, 361:5, 361:12, 363:15, 364:7, 365:7, 365:20, 366:5, 366:11, 367:14, 375:19, 414:11, 414:16, 416:15, 416:21, 417:6, 417:15, 421:4, 426:10, 438:7, 438:16, 445:11, 447:23
Dear [1] - 333:17
decades [2] - 151:25, 156:16
December [1] - 103:25
decide [7] - 28:8, 40:24, 48:23, 69:17, 85:5, 201:9, 309:8
decided [11] - 68:23, 71:1, 118:4, 128:19, 190:17, 283:1, 292:7, 318:12, 318:13, 341:15, 452:6
deciding [3] - 50:18, 317:10, 456:12
decision [30] - 8:20, 10:13, 14:10, 21:18, 55:10, 85:3, 154:23, 230:16, 237:22, 237:23, 244:8, 303:24, 303:25, 304:13, 304:16, 318:6, 319:22, 324:10, 324:23, 329:23, 335:23, 433:20, 433:23, 436:12, 436:17, 436:18, 452:1, 452:3, 453:18, 456:20
decision-maker [1] - 433:23
decisions [6] - 27:19, 245:7, 262:15, 304:19, 317:22, 329:25
deck [5] - 158:18, 197:20, 215:19, 222:2, 222:14
declaration [11] - 13:19, 14:8, 15:20, 39:5, 39:17, 40:2, 43:6, 107:1, 149:9, 149:15, 149:16
Declaration [7] - 39:2, 101:23, 106:23, 149:7, 225:24,

226:2, 226:3
declarations [4] - 148:24, 149:17, 149:18, 225:25
decline [7] - 305:5, 305:10, 333:25, 334:3, 335:13, 335:23, 336:10
declined [5] - 305:1, 341:19, 341:20, 341:21, 341:22
declining [2] - 305:14, 334:2
decrease [3] - 200:19, 253:1, 327:14
deep [2] - 156:10
defendant [1] - 284:10
defense [3] - 36:21, 236:14, 384:6
definitely [5] - 70:15, 179:3, 183:3, 279:1, 443:12
deflate [12] - 11:12, 16:17, 40:8, 74:11, 75:5, 79:15, 93:25, 94:5, 97:9, 273:24, 274:18, 292:19
deflated [14] - 33:4, 35:9, 35:21, 121:3, 121:8, 141:11, 141:14, 144:9, 164:8, 164:9, 184:13, 276:2, 276:7
Deflategate [3] - 261:22, 267:2, 322:11
deflating [5] - 85:17, 85:21, 90:1, 135:2
deflation [31] - 34:4, 34:10, 100:18, 100:24, 101:4, 101:8, 103:16, 112:24, 113:5, 136:4, 140:6, 141:3, 141:17, 142:14, 143:3, 145:4, 145:10, 145:19, 155:7, 181:12, 191:19, 210:8, 243:2, 274:8, 276:15, 277:2, 277:5, 278:17, 304:10, 306:7, 332:20
deflator [3] - 135:9, 136:4, 316:22
Degree [1] - 156:15
degree [9] - 7:22, 149:5, 194:23, 221:7, 317:16,

317:18, 346:21,
383:19, 412:9
degrees [13] - 220:17,
257:5, 291:1,
352:23, 364:25,
365:4, 365:18,
365:25, 372:2,
372:3, 412:10
delay [1] - 416:1
delegating [1] - 28:5
delegation [5] - 27:15,
27:21, 28:2, 28:21,
242:10
deliberate [2] - 10:13,
267:8
deliberations [1] -
267:9
delivered [8] - 215:25,
216:7, 217:3,
217:11, 217:23,
218:6, 218:10,
364:15
delta [2] - 328:1, 370:6
demand [1] - 305:21
demonstrated [1] -
431:20
denial [1] - 40:16
denied [4] - 306:6,
326:2, 326:3, 326:7
departed [1] - 308:3
Department [7] -
152:3, 280:10,
280:14, 280:18,
280:21, 281:16,
281:21
department [7] -
228:11, 347:11,
440:10, 440:12,
440:14, 440:15,
440:16
departure [1] - 413:13
DePASO [1] - 3:4
dependence [1] -
172:7
dependent [6] -
169:16, 213:21,
215:4, 352:8, 357:4,
429:25
depositions [2] -
434:7, 434:10
derive [1] - 165:12
derived [1] - 243:13
describe [35] - 30:4,
80:1, 83:9, 163:15,
184:2, 186:18,
200:8, 200:12,
211:7, 211:8,
251:13, 251:15,
264:8, 346:19,
347:3, 348:22,

349:13, 350:19,
353:10, 353:22,
354:5, 354:9,
356:25, 358:10,
359:11, 372:11,
403:4, 403:9,
405:14, 412:7,
412:12, 413:5,
414:13, 441:12,
442:4
described [22] - 54:21,
108:20, 131:16,
137:23, 187:7,
189:25, 193:4,
211:25, 216:5,
237:24, 255:12,
259:19, 267:1,
354:3, 359:12,
367:12, 419:2,
419:3, 438:7,
447:23, 448:4
describes [5] - 37:3,
106:11, 253:20,
350:16, 359:16
describing [1] - 211:9
description [3] -
261:18, 367:16,
445:13
designated [1] -
441:13
despite [11] - 96:17,
159:6, 211:3,
222:16, 262:17,
264:20, 302:9,
344:8, 361:15,
427:20, 446:6
destination [1] -
413:14
destroy [7] - 87:9,
91:6, 105:19,
105:20, 106:11,
106:12, 108:8
destroyed [8] - 39:21,
88:5, 106:17,
106:18, 107:25,
108:2, 108:13, 337:1
destroying [1] - 87:8
destruction [2] -
106:4, 108:4
detail [4] - 291:9,
349:14, 444:8,
447:11
details [4] - 33:21,
212:3, 417:12,
418:21
detecting [1] - 435:14
determination [3] -
118:1, 118:22,
290:12
determinations [1] -

252:14
determine [21] -
112:23, 113:4,
204:21, 205:2,
205:23, 206:8,
206:15, 206:21,
212:18, 213:5,
272:13, 311:11,
314:13, 327:7,
327:13, 346:14,
349:2, 349:8,
349:21, 380:14,
388:1
determined [6] -
76:22, 200:21,
223:13, 328:8,
354:24, 362:2
determining [1] -
373:22
Detrimental [1] - 25:5
detrimental [21] - 9:7,
9:24, 29:3, 29:4,
29:11, 29:17, 31:14,
32:2, 32:8, 32:20,
33:15, 35:25, 36:4,
36:12, 36:13, 38:15,
42:11, 42:19, 46:14,
326:16
developed [6] -
166:14, 183:2,
190:17, 328:19,
328:21, 328:22
developing [2] -
153:4, 190:8
development [2] -
442:14, 443:3
develops [1] - 154:6
deviation [3] - 405:6,
408:25, 421:8
deviations [2] -
404:22, 405:7
device [2] - 105:20,
106:13
devices [2] - 102:5,
102:8
Diego [1] - 412:15
differ [2] - 192:5,
415:7
difference [138] - 13:9,
17:4, 54:19, 73:9,
120:19, 157:19,
158:23, 158:24,
159:7, 160:19,
163:10, 163:19,
163:21, 164:20,
164:24, 165:5,
166:15, 166:16,
166:18, 167:12,
169:20, 173:5,
173:6, 173:10,

173:13, 173:23,
175:9, 175:12,
175:17, 175:20,
177:18, 177:21,
177:22, 178:7,
179:12, 179:13,
179:14, 179:16,
179:21, 181:17,
181:20, 186:2,
186:3, 197:7,
197:23, 198:4,
198:5, 199:7,
199:20, 200:6,
200:7, 200:18,
200:24, 201:25,
202:5, 203:7,
203:11, 203:21,
204:11, 204:13,
205:4, 205:16,
206:10, 206:17,
207:18, 207:19,
208:18, 213:22,
213:23, 215:5,
215:11, 223:7,
223:20, 224:9,
225:14, 287:7,
327:14, 327:19,
327:25, 328:5,
349:11, 350:10,
354:22, 355:13,
355:25, 356:2,
356:10, 356:23,
357:6, 357:15,
358:9, 358:14,
359:18, 362:21,
363:6, 363:7,
367:17, 367:20,
368:16, 380:9,
414:7, 414:18,
415:8, 416:23,
418:25, 427:1,
427:2, 432:19,
433:21, 435:7,
435:11, 442:23,
445:18, 450:15,
453:16
differences [28] -
158:23, 160:14,
160:20, 163:19,
163:24, 167:12,
173:24, 179:16,
205:25, 215:7,
360:22, 363:7,
367:17, 367:20,
380:10, 387:8,
395:5, 396:6,
413:17, 418:25,
419:8, 422:6, 422:9,
426:24, 427:6,
450:22, 453:17
different [52] - 10:8,

10:11, 17:17, 27:13,
49:3, 52:14, 52:17,
52:18, 54:13, 54:16,
54:20, 56:4, 57:11,
68:12, 68:13, 69:21,
73:1, 77:8, 130:23,
153:21, 163:4,
166:10, 178:14,
183:7, 189:16,
194:12, 195:19,
196:6, 205:15,
214:18, 231:24,
235:6, 244:7,
258:17, 289:13,
289:14, 289:18,
289:22, 303:17,
315:22, 317:5,
347:21, 352:25,
353:1, 363:8,
367:10, 394:11,
394:15, 394:16,
418:22, 455:14
differential [1] - 217:7
differently [5] - 82:18,
184:21, 211:9,
285:2, 288:15
difficult [2] - 193:20,
445:5
Diplomate [1] - 457:13
direct [18] - 40:7, 40:8,
48:14, 101:21,
104:10, 139:9,
200:14, 274:20,
276:2, 297:16,
298:2, 353:7,
361:10, 402:22,
402:25, 420:21,
427:23, 453:15
DIRECT [7] - 47:9,
150:12, 227:24,
261:7, 345:7,
411:22, 439:19
Direct [2] - 5:14, 5:21
directed [13] - 22:9,
22:10, 25:8, 46:15,
57:20, 99:1, 99:2,
144:6, 198:12,
274:17, 274:25,
312:3, 334:25
directing [16] -
102:11, 102:17,
106:22, 111:7,
112:20, 129:10,
133:21, 251:20,
355:22, 356:14,
356:24, 363:19,
373:2, 445:16,
446:3, 446:24
direction [4] - 175:4,
348:4, 422:1, 422:3

directions [1] - 96:10
directly [7] - 6:14, 17:14, 38:20, 159:24, 209:11, 220:15, 313:22
director [1] - 347:10
Director [2] - 322:14, 412:3
dirk [1] - 156:14
dirt [1] - 53:3
disagree [4] - 196:16, 374:8, 387:24, 395:12
disagreed [1] - 433:11
disappeared [2] - 34:13, 293:17
disapprove [2] - 51:21, 116:20
discarded [1] - 108:7
disciplinary [1] - 154:21
discipline [30] - 7:23, 9:6, 9:7, 10:5, 14:11, 21:5, 23:24, 25:3, 25:5, 28:1, 29:5, 35:22, 37:12, 40:25, 41:2, 41:12, 42:12, 46:11, 242:4, 242:6, 243:8, 243:15, 243:16, 244:20, 245:9, 250:14, 326:15, 334:15, 341:25, 441:4
disciplined [3] - 24:12, 86:11, 245:14
disciplines [1] - 346:12
discover [1] - 436:16
discovery [1] - 222:21
discretion [3] - 32:1, 42:10, 317:21
discuss [11] - 50:21, 81:12, 140:6, 141:10, 141:16, 143:22, 144:1, 160:16, 212:7, 381:22, 443:17
discussed [24] - 63:3, 90:1, 92:10, 126:11, 128:15, 130:9, 130:11, 132:2, 132:21, 142:8, 178:25, 182:25, 211:21, 212:4, 231:8, 291:9, 349:21, 354:13, 354:16, 355:19, 360:11, 419:11, 422:22, 450:1
discusses [1] - 97:19

discussing [4] - 52:8, 145:18, 276:10, 290:19
discussion [16] - 35:1, 39:7, 64:25, 66:18, 81:22, 83:4, 110:9, 127:10, 127:13, 141:3, 312:10, 334:9, 334:11, 334:25, 364:4, 447:7
discussions [5] - 13:23, 65:4, 279:24, 287:21, 407:3
dispersion [2] - 181:4, 181:8
dispose [1] - 88:8
disposed [2] - 104:25, 105:8
dispute [7] - 23:2, 31:16, 33:2, 33:6, 34:18, 37:4, 127:24
disputed [2] - 27:8, 37:4
disqualified [1] - 280:25
disrespectful [1] - 454:5
distracted [3] - 142:5, 142:13, 142:20
divide [1] - 390:9
Division [1] - 152:4
division [1] - 153:7
doctor [1] - 373:17
document [6] - 29:16, 35:19, 101:24, 102:12, 104:14, 442:8
documentation [2] - 289:15, 417:12
documented [5] - 33:10, 34:11, 34:24, 37:25, 38:3
documents [13] - 29:23, 37:16, 39:8, 244:23, 244:24, 245:3, 299:21, 304:15, 305:1, 332:3, 336:22, 339:12, 339:14
dog [1] - 284:4
dollar [2] - 453:3, 453:4
dolphins [3] - 311:16, 311:20, 322:10
Dolphins [2] - 262:11, 262:20
dome [1] - 76:18
domestic [1] - 46:3
Don [2] - 109:7, 109:17

DONALD [1] - 4:5
Donald [2] - 105:11, 333:9
done [120] - 15:16, 16:10, 17:10, 19:21, 21:2, 29:13, 29:20, 32:7, 34:16, 34:17, 57:11, 69:13, 69:22, 71:5, 74:10, 77:23, 79:15, 85:11, 88:4, 90:17, 91:23, 92:17, 93:15, 95:14, 95:18, 101:6, 105:20, 106:7, 106:13, 124:18, 128:5, 129:6, 137:12, 137:17, 147:16, 147:23, 149:19, 149:20, 149:22, 151:11, 151:17, 153:9, 154:8, 155:5, 158:7, 158:12, 159:15, 162:19, 194:6, 230:17, 231:21, 233:7, 233:8, 237:6, 239:2, 243:4, 254:20, 255:4, 258:3, 264:23, 270:23, 274:22, 275:1, 275:2, 275:7, 275:20, 276:1, 277:1, 283:3, 285:19, 291:15, 291:16, 306:24, 311:24, 317:1, 322:8, 322:9, 330:11, 331:7, 338:19, 342:22, 344:13, 361:7, 363:16, 366:12, 371:17, 373:5, 374:17, 390:20, 391:8, 391:20, 391:25, 392:2, 392:5, 395:8, 398:19, 399:6, 399:25, 400:2, 400:4, 400:6, 400:7, 400:23, 415:3, 415:4, 416:13, 417:4, 417:6, 418:24, 424:8, 424:15, 437:7, 437:25, 441:10, 447:24, 448:8, 454:15, 456:4
door [2] - 229:17, 309:1
Doty [2] - 45:24, 46:5

Doty's [1] - 21:18
double [1] - 283:22
double-check [1] - 283:22
doubt [9] - 32:12, 107:12, 110:23, 128:12, 131:15, 132:14, 134:9, 325:1, 325:10
DOUGLAS [1] - 3:17
down [40] - 18:21, 18:22, 53:11, 83:16, 105:17, 117:23, 127:4, 128:22, 130:19, 132:6, 161:20, 165:21, 169:14, 173:16, 174:24, 205:20, 219:2, 231:19, 239:10, 241:23, 263:22, 264:15, 268:14, 289:3, 306:15, 306:17, 309:7, 309:8, 329:13, 334:18, 336:5, 340:8, 351:1, 369:24, 391:4, 399:13, 409:24, 411:10, 430:4, 438:18
downpour [1] - 55:2
dozen [1] - 196:14
dozens [7] - 218:13, 218:17, 218:18
Dr [53] - 155:15, 222:19, 227:17, 281:17, 281:20, 282:17, 282:20, 283:5, 283:15, 285:4, 285:20, 286:10, 286:20, 286:25, 287:18, 287:22, 287:25, 290:19, 330:4, 330:12, 330:14, 330:20, 330:22, 331:4, 342:9, 342:13, 342:25, 343:10, 343:19, 345:2, 345:13, 347:8, 347:13, 347:19, 347:23, 354:2, 371:14, 373:13, 374:12, 380:9, 380:19, 402:22, 412:7, 413:11, 414:10, 416:5, 425:2, 425:20, 426:4, 426:6, 426:11,

432:6, 454:22
draft [3] - 267:25, 269:16, 269:24
drafted [1] - 47:16
drafter [1] - 269:23
drafts [3] - 265:5, 265:15, 444:18
draw [10] - 38:22, 44:12, 167:1, 167:4, 178:8, 182:4, 190:14, 209:21, 210:4, 337:6
drawing [1] - 210:6
drawn [1] - 417:13
draws [3] - 222:14, 361:13, 446:4
Drew [1] - 64:11
drew [1] - 159:8
dried [3] - 383:13, 383:16, 383:19
drill [1] - 309:7
driver [1] - 276:21
drop [39] - 162:23, 163:4, 164:15, 167:8, 167:20, 174:24, 200:17, 208:23, 213:22, 287:8, 287:10, 314:13, 314:23, 354:20, 355:25, 358:14, 367:23, 368:17, 370:6, 384:12, 388:2, 388:3, 400:12, 402:9, 414:7, 415:7, 416:23, 416:25, 418:1, 418:5, 420:1, 420:3, 425:11, 425:14, 425:18, 427:5, 427:7, 434:22
dropped [2] - 163:12, 223:21
drops [29] - 157:20, 158:24, 158:25, 163:10, 163:16, 163:21, 166:18, 177:18, 197:7, 197:23, 199:20, 205:4, 206:1, 206:10, 221:12, 349:12, 350:11, 355:14, 356:23, 357:6, 357:11, 357:16, 359:19, 414:18, 419:9, 425:23, 432:20, 445:18
drug [2] - 18:12
dry [32] - 168:25, 171:7, 171:19,

171:20, 171:21,
171:25, 179:5,
180:17, 221:1,
233:2, 233:3,
235:21, 237:3,
237:7, 289:9, 367:5,
383:3, 383:4, 383:5,
384:14, 384:15,
384:16, 384:21,
385:6, 385:10,
386:18, 387:6,
407:1, 407:5, 422:9
dryer [7] - 168:19,
168:24, 178:17,
382:15, 383:20,
386:8
dryness [5] - 290:10,
360:22, 362:25,
367:4, 407:13
Duane [3] - 347:8,
411:17, 412:1
DUANE [2] - 4:15,
5:23
Dubin [1] - 333:20
DUBIN [2] - 4:3, 4:5
due [7] - 165:6,
290:13, 314:14,
334:10, 360:25,
361:4, 456:6
Duffner [5] - 156:14,
156:19, 157:8,
178:25, 182:25
duly [7] - 47:6, 150:9,
227:21, 261:4,
345:4, 411:19,
439:16
DUNN [1] - 3:20
duration [1] - 206:4
during [83] - 23:12,
23:18, 37:1, 39:14,
48:1, 50:22, 51:4,
51:5, 56:4, 57:6,
57:13, 57:15, 57:20,
63:4, 63:5, 63:13,
65:3, 65:9, 71:22,
72:11, 73:4, 73:7,
73:12, 74:11, 75:15,
81:7, 86:8, 93:2,
103:7, 104:4,
104:17, 104:20,
107:15, 107:18,
110:4, 110:9,
113:19, 124:3,
126:11, 130:9,
131:3, 132:3,
132:22, 133:2,
133:8, 138:9,
138:11, 138:16,
139:15, 142:11,
143:14, 143:18,

143:21, 144:16,
144:18, 145:12,
155:8, 190:5, 191:8,
191:22, 230:12,
235:25, 238:2,
245:22, 248:4,
251:10, 263:16,
275:23, 288:2,
319:16, 339:25,
358:2, 359:8, 384:6,
406:16, 407:2,
412:16, 414:11,
440:11, 442:1,
445:10, 450:2,
450:13
duties [3] - 196:23,
276:14, 312:4
duty [3] - 86:17,
271:19, 323:6
dynamic [1] - 428:4

E

e-mail [28] - 14:10,
39:12, 52:8, 90:20,
109:7, 109:17,
144:20, 149:18,
277:7, 277:8, 277:9,
277:17, 280:13,
281:11, 305:23,
306:1, 332:5, 333:9,
333:15, 333:16,
333:20, 333:22,
334:23, 335:18,
337:10, 338:7
e-mailed [1] - 281:2
e-mails [36] - 14:15,
14:23, 14:24, 15:11,
39:8, 43:5, 61:20,
61:25, 62:12, 78:4,
84:23, 85:14, 85:15,
85:25, 86:9, 91:11,
91:17, 91:18, 92:2,
144:16, 305:21,
305:24, 310:13,
310:15, 310:21,
311:3, 311:14,
313:7, 329:9,
332:18, 335:24,
339:12, 339:18,
339:23, 340:2,
341:11
early [12] - 282:6,
286:25, 287:21,
409:21, 409:25,
410:1, 410:5, 410:6,
413:15, 415:3,
434:21
ears [1] - 283:22
earth [1] - 293:18

easier [1] - 384:16
eBay [1] - 379:15
Econometrics [1] -
210:25
econometrics [2] -
201:21, 211:1
economics [3] -
150:19, 152:17,
152:18
Economics [1] -
150:25
economist [2] - 151:9,
152:19
economy [1] - 153:22
ed [1] - 330:19
edge [1] - 409:23
editorialize [1] -
448:18
educational [2] -
346:20, 412:8
EDWARD [2] - 4:9,
5:16
Edward [3] - 47:13,
150:7, 150:16
EDWARDS [3] - 1:23,
457:7, 457:12
effect [76] - 35:15,
168:20, 174:9,
175:4, 178:22,
178:24, 179:8,
180:19, 186:11,
205:9, 211:14,
212:16, 212:17,
213:3, 213:4, 216:5,
272:20, 352:16,
353:24, 356:3,
356:10, 357:8,
357:10, 360:9,
360:13, 360:16,
360:24, 361:1,
362:12, 362:15,
362:16, 362:24,
367:4, 370:11,
370:12, 380:13,
395:6, 396:4,
400:13, 400:14,
405:24, 414:5,
415:14, 417:23,
421:11, 422:2,
422:8, 424:3, 424:4,
425:3, 425:4,
425:12, 425:13,
425:22, 429:21,
430:13, 435:21,
436:13, 436:14,
436:16, 438:13,
443:8, 443:13,
446:15, 449:17,
449:21, 450:12,
450:20, 451:3,

452:13, 452:24,
453:5
effective [2] - 187:8,
216:22
effectively [1] - 424:17
effects [14] - 159:1,
350:6, 360:7, 361:4,
419:3, 423:9,
423:14, 423:16,
423:18, 423:21,
423:25, 424:4, 424:5
efficient [1] - 270:25
effort [2] - 35:20,
141:16
efforts [6] - 75:5,
93:25, 94:4, 113:25,
114:4, 407:1
Ehrlich [4] - 311:18,
312:12, 335:5, 335:7
Eight [1] - 220:1
eight [11] - 131:1,
159:15, 183:21,
185:18, 187:17,
188:15, 215:21,
363:22, 364:24,
365:15, 447:2
Eighth [2] - 2:11,
21:19
EISENSTEIN [1] - 2:22
either [34] - 26:15,
27:25, 28:7, 35:2,
38:8, 39:21, 41:13,
91:12, 91:21,
115:25, 134:12,
186:6, 193:1, 193:9,
234:8, 254:11,
254:17, 265:18,
280:18, 308:9,
311:17, 320:17,
339:11, 355:15,
358:25, 370:24,
371:7, 395:19,
414:6, 415:25,
422:11, 428:5,
430:12, 439:8
elaborate [2] - 151:17,
158:21
elapse [1] - 418:12
elapsed [1] - 438:19
elected [1] - 412:20
electronic [3] - 84:19,
109:7, 337:13
eleven [24] - 159:15,
160:1, 177:6,
183:22, 188:15,
215:21, 220:1,
222:24, 238:3,
238:9, 238:11,
239:11, 362:10,
363:23, 364:24,

365:15, 389:13,
391:11, 406:2,
412:6, 415:24,
418:9, 423:23, 447:2
eliminate [1] - 395:20
eliminated [1] -
175:23
ELIZABETH [1] - 2:23
embodies [1] - 214:5
emphasis [1] - 440:18
emphasized [3] -
41:19, 42:17, 164:1
emphasizing [2] -
425:21, 426:8
emphatic [2] - 293:4,
293:15
empirical [3] - 151:12,
415:10
employed [5] - 311:3,
345:13, 345:14,
412:2, 439:24
employee [6] - 24:6,
156:16, 246:11,
246:13, 250:3,
259:24
employees [2] - 123:8,
243:2
encounter [1] - 435:7
encourage [1] -
335:22
end [35] - 35:15,
40:18, 42:17, 70:7,
111:9, 111:23,
115:2, 115:22,
116:6, 118:9,
164:10, 185:16,
188:16, 192:25,
193:6, 193:7,
211:20, 211:24,
221:6, 226:17,
226:18, 234:7,
276:19, 298:20,
298:25, 299:3,
318:16, 318:20,
321:20, 340:6,
365:9, 370:3,
378:25, 398:10
ended [2] - 70:6,
284:23
Ending [1] - 299:9
endorsement [1] -
90:22
ends [1] - 291:2
Enforcement [1] -
99:9
enforcement [4] -
151:21, 151:25,
152:6, 272:5
engage [1] - 36:12
engaged [17] - 29:3,

29:11, 32:2, 38:15,
41:5, 42:10, 42:18,
42:19, 42:23, 43:3,
102:2, 274:7,
326:16, 347:11,
347:17, 347:20
engagements [1] -
153:22
engaging [1] - 273:23
engineer [1] - 345:17
Engineer [1] - 347:15
engineering [8] -
327:11, 345:19,
345:21, 346:4,
346:7, 346:10,
346:12, 346:22
Engineering [1] -
346:23
engineering-based
[1] - 327:11
engineers [1] - 283:10
ENGLAND [1] - 2:23
England [4] - 47:19,
61:16, 82:8, 300:9
English [1] - 452:22
enjoyed [1] - 152:20
ensure [2] - 37:22,
190:12
entailed [1] - 154:2
enter [1] - 251:18
entered [1] - 113:19
entertain [2] - 183:19,
188:2
entire [9] - 197:2,
201:2, 286:2,
287:21, 358:16,
397:18, 407:6,
429:7, 437:9
entirely [3] - 45:8,
221:11, 264:16
entities [1] - 322:22
entitled [3] - 15:10,
31:2, 31:3
entity [1] - 330:18
entrance [2] - 251:19,
307:18
entry [1] - 130:2
environment [5] -
169:10, 169:11,
169:12, 192:7,
391:14
environmental [9] -
206:2, 327:17,
346:5, 349:10,
352:4, 358:3, 358:8,
388:7, 405:24
environments [1] -
83:13
equal [1] - 420:15
equally [1] - 368:6

equation [9] - 173:10,
201:16, 212:8,
370:21, 430:3,
430:5, 430:7,
430:10, 430:12
equations [1] - 203:12
equilibrate [2] - 171:6,
171:9
equilibrium [1] -
425:17
Equipment [1] - 26:6
equipment [17] -
22:25, 24:10, 24:18,
25:11, 26:22, 53:24,
59:6, 60:15, 69:4,
72:3, 117:7, 123:7,
140:3, 147:5, 250:4,
283:11, 401:9
equivalent [5] - 9:10,
372:13, 372:22,
376:5, 442:17
equivocation [1] -
25:9
erratic [1] - 316:4
error [23] - 159:11,
176:2, 186:10,
186:17, 191:25,
192:6, 203:19,
203:20, 213:25,
372:8, 372:14,
404:16, 405:8,
405:9, 409:17,
409:23, 410:2,
423:1, 426:9,
426:11, 427:7,
436:20, 436:21
errors [4] - 157:3,
157:23, 158:14,
185:20
especially [6] -
169:18, 321:19,
386:22, 435:16,
438:9, 444:5
ESPN [3] - 135:9,
136:5, 316:23
ESQ [21] - 2:5, 2:6,
2:12, 2:16, 2:22,
2:22, 2:23, 2:23, 3:4,
3:5, 3:11, 3:11, 3:12,
3:12, 3:17, 3:17,
3:18, 3:22, 4:5, 4:5,
4:10
essential [1] - 19:7
essentially [13] - 8:23,
87:4, 146:5, 147:3,
147:7, 147:25,
149:10, 149:12,
416:4, 425:3,
426:16, 442:17,
446:19

establish [3] - 183:12,
184:24, 244:21
established [8] -
21:20, 26:23, 136:8,
184:7, 242:24,
285:24, 308:4,
314:11
establishing [1] -
220:8
estimate [5] - 419:25,
420:2, 423:18,
424:5, 436:19
estimated [1] - 307:12
estimates [4] - 214:14,
423:11, 423:14,
423:20
et [1] - 250:23
ethical [2] - 271:19,
271:21
ethics [1] - 323:12
evaluate [8] - 155:6,
158:14, 166:15,
176:21, 190:13,
327:16, 339:6, 350:6
evaluated [6] - 154:20,
186:23, 338:17,
350:17, 386:11
evaluating [4] - 157:4,
157:10, 211:20,
433:14
evaluator [1] - 158:2
Evans [1] - 440:3
evening [2] - 130:20,
373:11
event [4] - 121:13,
221:9, 258:3, 452:9
events [14] - 74:7,
160:7, 168:2, 168:3,
168:6, 176:12,
176:19, 177:11,
187:21, 206:5,
253:17, 358:1,
359:5, 406:18
eventually [1] - 61:5
evidence [91] - 8:1,
8:9, 8:12, 10:21,
11:20, 12:7, 13:22,
17:1, 20:18, 22:10,
28:24, 30:1, 30:4,
30:8, 30:9, 31:25,
32:9, 32:17, 32:18,
32:21, 32:25, 33:1,
33:7, 34:10, 34:22,
35:5, 36:23, 37:3,
37:14, 37:15, 38:5,
38:16, 38:25, 40:11,
40:18, 40:25, 41:21,
41:23, 41:24, 42:2,
42:5, 42:6, 42:7,
46:23, 98:1, 98:7,

101:22, 148:24,
149:6, 149:24,
150:2, 187:1,
197:19, 219:4,
242:25, 247:1,
254:16, 255:2,
273:12, 274:17,
275:13, 275:16,
276:2, 276:12,
285:18, 289:24,
293:3, 301:12,
316:19, 316:20,
317:9, 317:12,
324:17, 325:5,
325:11, 366:21,
367:7, 369:3,
369:12, 370:1,
385:4, 420:23,
426:8, 434:3,
434:12, 434:16,
435:6, 437:11, 447:8
exacerbated [1] -
14:13
exact [8] - 17:7, 17:8,
46:13, 58:17, 235:6,
274:10, 319:7,
415:20
exactly [31] - 14:25,
15:4, 17:10, 18:15,
22:21, 30:25,
100:12, 100:25,
115:14, 118:17,
120:1, 126:13,
130:11, 132:4,
132:23, 134:14,
149:21, 178:20,
207:14, 210:5,
221:2, 223:18,
225:11, 296:4,
376:10, 381:6,
381:23, 399:21,
417:14, 421:25,
438:12
examination [8] -
20:11, 20:17,
226:21, 270:17,
343:17, 349:24,
379:5, 453:15
EXAMINATION [23] -
47:9, 100:6, 139:4,
143:12, 150:12,
194:20, 227:24,
251:7, 255:9,
259:15, 261:7,
321:25, 340:19,
345:7, 373:9,
402:20, 408:4,
411:22, 427:18,
438:3, 439:19,
448:12, 454:20

examinations [1] -
321:9
examine [4] - 101:13,
101:16, 323:2, 343:8
examined [10] - 47:7,
150:10, 153:14,
223:9, 227:22,
261:5, 270:23,
345:5, 411:20,
439:17
examiner [1] - 112:5
examining [3] - 270:7,
270:22
example [7] - 22:16,
23:9, 120:3, 196:7,
275:15, 419:16,
424:10
examples [1] - 245:14
exceed [1] - 225:3
exceeded [1] - 168:9
exceeds [2] - 160:23,
161:1
except [9] - 12:11,
21:2, 30:10, 88:3,
175:16, 269:6,
310:19, 371:2,
405:17
exceptionally [1] -
437:4
exceptions [1] -
293:25
exchange [1] - 127:5
exchanged [5] -
111:2, 125:6,
140:19, 144:16,
144:18
exchanges [4] -
111:11, 111:25,
145:12, 153:20
exclude [1] - 207:3
excluded [4] - 204:14,
210:20, 356:12,
434:16
excluding [1] - 202:18
excuse [4] - 37:8,
185:7, 193:7, 202:9
execute [2] - 183:20,
185:5
execution [1] - 444:9
Executive [10] - 2:6,
228:6, 262:25,
263:9, 263:15,
264:8, 273:6,
300:22, 322:14,
326:23
executive [1] - 246:7
executives [1] - 99:7
exemplar [4] - 355:6,
377:16, 378:16,
379:2

exemplars [1] - 301:20	399:12, 441:2	280:2, 280:7, 281:4, 288:20, 291:20, 329:2, 329:17, 348:12	38:1, 421:8, 448:16	286:17, 287:24, 291:8, 300:20, 301:8, 302:6, 302:25, 303:9, 315:5, 326:19, 326:22, 327:2, 327:6, 327:10, 329:12, 330:12, 330:23, 331:4, 342:5, 342:8, 342:11, 342:24, 343:4, 343:8, 343:16, 345:14, 345:20, 345:21, 346:25, 347:24, 348:9, 349:15, 350:17, 359:13, 361:8, 361:12, 363:17, 366:13, 366:16, 367:18, 367:21, 368:2, 370:21, 371:17, 371:18, 373:5, 373:6, 402:23, 412:4, 412:5, 413:1, 413:7, 414:14, 416:13, 416:14, 422:12, 427:12, 427:13, 432:22, 433:16, 441:11, 441:24, 442:7, 442:14, 443:4, 443:14, 443:22, 444:2, 444:12, 444:23, 445:25, 446:4, 446:19, 447:25, 448:9, 448:22, 454:13, 455:17
exemplary [2] - 20:24, 338:19	experimental [11] - 208:16, 209:23, 347:18, 358:11, 358:13, 367:2, 432:3, 440:20, 448:19, 448:24, 449:2	explain [68] - 11:24, 12:5, 16:7, 16:11, 17:1, 34:4, 43:7, 48:19, 48:22, 48:25, 75:10, 77:6, 78:24, 79:25, 87:23, 120:22, 149:18, 157:16, 159:20, 164:16, 166:5, 174:16, 184:16, 199:7, 202:14, 203:7, 203:20, 205:3, 205:8, 205:9, 205:14, 205:25, 206:10, 206:17, 206:23, 206:24, 207:5, 210:23, 213:17, 213:21, 214:1, 214:17, 222:10, 288:5, 324:3, 327:2, 356:22, 357:5, 373:23, 388:2, 388:3, 388:21, 389:11, 389:24, 390:21, 392:18, 392:20, 397:14, 401:4, 404:16, 408:21, 420:9, 436:11, 439:8, 453:24, 454:3, 454:7	explanatory [4] - 173:12, 173:14, 201:13, 213:19 explicitly [1] - 212:15 explore [1] - 188:3 explored [1] - 179:4 exploring [1] - 415:10 exponent [186] - 16:9, 20:13, 33:23, 155:6, 156:16, 156:21, 158:10, 158:25, 159:3, 159:14, 159:23, 159:24, 160:21, 161:2, 161:6, 162:3, 162:14, 162:16, 162:25, 163:2, 163:16, 164:2, 164:25, 165:4, 169:4, 169:6, 169:21, 170:25, 172:3, 172:15, 172:20, 173:5, 173:15, 174:15, 175:25, 177:9, 177:18, 178:13, 180:23, 181:14, 182:15, 182:21, 183:12, 184:3, 184:16, 185:14, 186:11, 187:1, 191:3, 192:9, 192:18, 193:8, 193:22, 194:3, 195:17, 195:24, 197:2, 197:8, 198:24, 199:1, 199:20, 200:8, 200:12, 200:14, 201:2, 201:7, 203:8, 204:25, 205:12, 205:20, 207:10, 208:10, 208:11, 208:12, 208:13, 208:17, 208:21, 209:10, 209:20, 211:4, 211:7, 211:13, 215:13, 218:14, 218:22, 219:7, 220:24, 222:4, 222:14, 222:19, 279:23, 279:25, 281:5, 281:6, 281:13, 281:15, 281:19, 282:3, 282:15, 283:2, 283:6, 283:17, 284:17, 285:4, 285:19,	Exponent [7] - 164:13, 187:18, 212:15, 346:3, 366:12, 441:14, 448:8 exponent's [28] - 157:10, 160:13, 161:11, 166:4, 166:7, 166:14, 167:11, 169:22, 174:13, 175:6, 175:16, 182:8, 183:21, 183:25, 185:20, 187:7, 188:6, 190:20, 197:22, 215:22, 220:9, 285:13, 342:21, 359:17, 363:23, 414:17, 445:17, 447:2 Exponent's [4] - 159:21, 220:2, 364:24, 432:24
exercise [2] - 292:25, 453:16	experimentally [3] - 347:16, 422:4, 431:20	explained [17] - 175:17, 179:14, 212:19, 213:7, 262:7, 268:6, 300:17, 328:9, 338:9, 338:11, 388:13, 389:5, 390:6, 394:21, 405:24, 408:13, 409:11 explaining [3] - 169:19, 409:8, 428:1 explains [4] - 212:3, 222:9, 416:22, 428:17 explanation [13] - 33:15, 39:22, 182:10, 222:22, 241:16, 241:22, 305:9, 370:6, 391:21, 404:13, 421:6, 436:5, 455:13 explanations [3] -	exponent [186] - 16:9, 20:13, 33:23, 155:6, 156:16, 156:21, 158:10, 158:25, 159:3, 159:14, 159:23, 159:24, 160:21, 161:2, 161:6, 162:3, 162:14, 162:16, 162:25, 163:2, 163:16, 164:2, 164:25, 165:4, 169:4, 169:6, 169:21, 170:25, 172:3, 172:15, 172:20, 173:5, 173:15, 174:15, 175:25, 177:9, 177:18, 178:13, 180:23, 181:14, 182:15, 182:21, 183:12, 184:3, 184:16, 185:14, 186:11, 187:1, 191:3, 192:9, 192:18, 193:8, 193:22, 194:3, 195:17, 195:24, 197:2, 197:8, 198:24, 199:1, 199:20, 200:8, 200:12, 200:14, 201:2, 201:7, 203:8, 204:25, 205:12, 205:20, 207:10, 208:10, 208:11, 208:12, 208:13, 208:17, 208:21, 209:10, 209:20, 211:4, 211:7, 211:13, 215:13, 218:14, 218:22, 219:7, 220:24, 222:4, 222:14, 222:19, 279:23, 279:25, 281:5, 281:6, 281:13, 281:15, 281:19, 282:3, 282:15, 283:2, 283:6, 283:17, 284:17, 285:4, 285:19,	Exponent [7] - 164:13, 187:18, 212:15, 346:3, 366:12, 441:14, 448:8 exponent's [28] - 157:10, 160:13, 161:11, 166:4, 166:7, 166:14, 167:11, 169:22, 174:13, 175:6, 175:16, 182:8, 183:21, 183:25, 185:20, 187:7, 188:6, 190:20, 197:22, 215:22, 220:9, 285:13, 342:21, 359:17, 363:23, 414:17, 445:17, 447:2 Exponent's [4] - 159:21, 220:2, 364:24, 432:24
exhibit [7] - 97:14, 98:9, 104:11, 200:17, 238:24, 298:15, 333:7	experimentally [3] - 347:16, 422:4, 431:20	explain [68] - 11:24, 12:5, 16:7, 16:11, 17:1, 34:4, 43:7, 48:19, 48:22, 48:25, 75:10, 77:6, 78:24, 79:25, 87:23, 120:22, 149:18, 157:16, 159:20, 164:16, 166:5, 174:16, 184:16, 199:7, 202:14, 203:7, 203:20, 205:3, 205:8, 205:9, 205:14, 205:25, 206:10, 206:17, 206:23, 206:24, 207:5, 210:23, 213:17, 213:21, 214:1, 214:17, 222:10, 288:5, 324:3, 327:2, 356:22, 357:5, 373:23, 388:2, 388:3, 388:21, 389:11, 389:24, 390:21, 392:18, 392:20, 397:14, 401:4, 404:16, 408:21, 420:9, 436:11, 439:8, 453:24, 454:3, 454:7	exponent [186] - 16:9, 20:13, 33:23, 155:6, 156:16, 156:21, 158:10, 158:25, 159:3, 159:14, 159:23, 159:24, 160:21, 161:2, 161:6, 162:3, 162:14, 162:16, 162:25, 163:2, 163:16, 164:2, 164:25, 165:4, 169:4, 169:6, 169:21, 170:25, 172:3, 172:15, 172:20, 173:5, 173:15, 174:15, 175:25, 177:9, 177:18, 178:13, 180:23, 181:14, 182:15, 182:21, 183:12, 184:3, 184:16, 185:14, 186:11, 187:1, 191:3, 192:9, 192:18, 193:8, 193:22, 194:3, 195:17, 195:24, 197:2, 197:8, 198:24, 199:1, 199:20, 200:8, 200:12, 200:14, 201:2, 201:7, 203:8, 204:25, 205:12, 205:20, 207:10, 208:10, 208:11, 208:12, 208:13, 208:17, 208:21, 209:10, 209:20, 211:4, 211:7, 211:13, 215:13, 218:14, 218:22, 219:7, 220:24, 222:4, 222:14, 222:19, 279:23, 279:25, 281:5, 281:6, 281:13, 281:15, 281:19, 282:3, 282:15, 283:2, 283:6, 283:17, 284:17, 285:4, 285:19,	Exponent [7] - 164:13, 187:18, 212:15, 346:3, 366:12, 441:14, 448:8 exponent's [28] - 157:10, 160:13, 161:11, 166:4, 166:7, 166:14, 167:11, 169:22, 174:13, 175:6, 175:16, 182:8, 183:21, 183:25, 185:20, 187:7, 188:6, 190:20, 197:22, 215:22, 220:9, 285:13, 342:21, 359:17, 363:23, 414:17, 445:17, 447:2 Exponent's [4] - 159:21, 220:2, 364:24, 432:24
Exhibit [32] - 24:4, 62:3, 64:19, 78:6, 97:18, 98:8, 101:22, 104:7, 105:10, 106:23, 111:5, 156:18, 197:19, 237:17, 242:6, 248:2, 249:15, 252:12, 253:13, 254:5, 255:12, 258:15, 298:3, 300:21, 331:18, 331:19, 333:6, 333:11, 335:10, 337:4, 359:15	experimentally- oriented [1] - 347:16 experimentation [6] - 413:23, 415:4, 415:13, 417:3, 427:8, 443:15 experiments [46] - 197:9, 197:13, 201:5, 202:4, 204:16, 204:17, 204:20, 205:2, 205:22, 205:23, 206:8, 206:21, 209:12, 209:14, 224:16, 225:10, 328:4, 328:11, 349:9, 350:6, 352:18, 353:6, 353:23, 357:1, 357:2, 357:8, 358:6, 358:15, 358:18, 358:19, 358:22, 360:6, 360:17, 363:5, 365:5, 366:19, 367:6, 382:24, 388:5, 415:14, 438:12, 439:4, 441:10, 443:3, 444:1, 444:6 experiments' [1] - 454:12 expert [25] - 33:17, 33:20, 33:24, 39:16, 102:1, 102:24, 104:21, 107:14, 148:25, 153:6, 201:20, 283:2, 284:1, 284:3, 284:11, 286:13, 286:15, 291:8, 317:15, 317:17, 348:17, 448:19 expertise [7] - 16:3, 156:11, 286:21, 346:9, 346:18, 347:4, 440:19 experts [14] - 15:24, 33:8, 33:12, 33:23, 270:22, 279:24,	explained [17] - 175:17, 179:14, 212:19, 213:7, 262:7, 268:6, 300:17, 328:9, 338:9, 338:11, 388:13, 389:5, 390:6, 394:21, 405:24, 408:13, 409:11 explaining [3] - 169:19, 409:8, 428:1 explains [4] - 212:3, 222:9, 416:22, 428:17 explanation [13] - 33:15, 39:22, 182:10, 222:22, 241:16, 241:22, 305:9, 370:6, 391:21, 404:13, 421:6, 436:5, 455:13 explanations [3] -	exponent [186] - 16:9, 20:13, 33:23, 155:6, 156:16, 156:21, 158:10, 158:25, 159:3, 159:14, 159:23, 159:24, 160:21, 161:2, 161:6, 162:3, 162:14, 162:16, 162:25, 163:2, 163:16, 164:2, 164:25, 165:4, 169:4, 169:6, 169:21, 170:25, 172:3, 172:15, 172:20, 173:5, 173:15, 174:15, 175:25, 177:9, 177:18, 178:13, 180:23, 181:14, 182:15, 182:21, 183:12, 184:3, 184:16, 185:14, 186:11, 187:1, 191:3, 192:9, 192:18, 193:8, 193:22, 194:3, 195:17, 195:24, 197:2, 197:8, 198:24, 199:1, 199:20, 200:8, 200:12, 200:14, 201:2, 201:7, 203:8, 204:25, 205:12, 205:20, 207:10, 208:10, 208:11, 208:12, 208:13, 208:17, 208:21, 209:10, 209:20, 211:4, 211:7, 211:13, 215:13, 218:14, 218:22, 219:7, 220:24, 222:4, 222:14, 222:19, 279:23, 279:25, 281:5, 281:6, 281:13, 281:15, 281:19, 282:3, 282:15, 283:2, 283:6, 283:17, 284:17, 285:4, 285:19,	Exponent [7] - 164:13, 187:18, 212:15, 346:3, 366:12, 441:14, 448:8 exponent's [28] - 157:10, 160:13, 161:11, 166:4, 166:7, 166:14, 167:11, 169:22, 174:13, 175:6, 175:16, 182:8, 183:21, 183:25, 185:20, 187:7, 188:6, 190:20, 197:22, 215:22, 220:9, 285:13, 342:21, 359:17, 363:23, 414:17, 445:17, 447:2 Exponent's [4] - 159:21, 220:2, 364:24, 432:24
exhibited [6] - 167:8, 167:20, 208:23, 327:14, 339:25, 354:20	experimentally [3] - 347:16, 422:4, 431:20	explained [17] - 175:17, 179:14, 212:19, 213:7, 262:7, 268:6, 300:17, 328:9, 338:9, 338:11, 388:13, 389:5, 390:6, 394:21, 405:24, 408:13, 409:11 explaining [3] - 169:19, 409:8, 428:1 explains [4] - 212:3, 222:9, 416:22, 428:17 explanation [13] - 33:15, 39:22, 182:10, 222:22, 241:16, 241:22, 305:9, 370:6, 391:21, 404:13, 421:6, 436:5, 455:13 explanations [3] -	exponent [186] - 16:9, 20:13, 33:23, 155:6, 156:16, 156:21, 158:10, 158:25, 159:3, 159:14, 159:23, 159:24, 160:21, 161:2, 161:6, 162:3, 162:14, 162:16, 162:25, 163:2, 163:16, 164:2, 164:25, 165:4, 169:4, 169:6, 169:21, 170:25, 172:3, 172:15, 172:20, 173:5, 173:15, 174:15, 175:25, 177:9, 177:18, 178:13, 180:23, 181:14, 182:15, 182:21, 183:12, 184:3, 184:16, 185:14, 186:11, 187:1, 191:3, 192:9, 192:18, 193:8, 193:22, 194:3, 195:17, 195:24, 197:2, 197:8, 198:24, 199:1, 199:20, 200:8, 200:12, 200:14, 201:2, 201:7, 203:8, 204:25, 205:12, 205:20, 207:10, 208:10, 208:11, 208:12, 208:13, 208:17, 208:21, 209:10, 209:20, 211:4, 211:7, 211:13, 215:13, 218:14, 218:22, 219:7, 220:24, 222:4, 222:14, 222:19, 279:23, 279:25, 281:5, 281:6, 281:13, 281:15, 281:19, 282:3, 282:15, 283:2, 283:6, 283:17, 284:17, 285:4, 285:19,	Exponent [7] - 164:13, 187:18, 212:15, 346:3, 366:12, 441:14, 448:8 exponent's [28] - 157:10, 160:13, 161:11, 166:4, 166:7, 166:14, 167:11, 169:22, 174:13, 175:6, 175:16, 182:8, 183:21, 183:25, 185:20, 187:7, 188:6, 190:20, 197:22, 215:22, 220:9, 285:13, 342:21, 359:17, 363:23, 414:17, 445:17, 447:2 Exponent's [4] - 159:21, 220:2, 364:24, 432:24
exhibits [2] - 97:25, 98:6	experimentally- oriented [1] - 347:16 experimentation [6] - 413:23, 415:4, 415:13, 417:3, 427:8, 443:15 experiments [46] - 197:9, 197:13, 201:5, 202:4, 204:16, 204:17, 204:20, 205:2, 205:22, 205:23, 206:8, 206:21, 209:12, 209:14, 224:16, 225:10, 328:4, 328:11, 349:9, 350:6, 352:18, 353:6, 353:23, 357:1, 357:2, 357:8, 358:6, 358:15, 358:18, 358:19, 358:22, 360:6, 360:17, 363:5, 365:5, 366:19, 367:6, 382:24, 388:5, 415:14, 438:12, 439:4, 441:10, 443:3, 444:1, 444:6 experiments' [1] - 454:12 expert [25] - 33:17, 33:20, 33:24, 39:16, 102:1, 102:24, 104:21, 107:14, 148:25, 153:6, 201:20, 283:2, 284:1, 284:3, 284:11, 286:13, 286:15, 291:8, 317:15, 317:17, 348:17, 448:19 expertise [7] - 16:3, 156:11, 286:21, 346:9, 346:18, 347:4, 440:19 experts [14] - 15:24, 33:8, 33:12, 33:23, 270:22, 279:24,	explained [17] - 175:17, 179:14, 212:19, 213:7, 262:7, 268:6, 300:17, 328:9, 338:9, 338:11, 388:13, 389:5, 390:6, 394:21, 405:24, 408:13, 409:11 explaining [3] - 169:19, 409:8, 428:1 explains [4] - 212:3, 222:9, 416:22, 428:17 explanation [13] - 33:15, 39:22, 182:10, 222:22, 241:16, 241:22, 305:9, 370:6, 391:21, 404:13, 421:6, 436:5, 455:13 explanations [3] -	exponent [186] - 16:9, 20:13, 33:23, 155:6, 156:16, 156:21, 158:10, 158:25, 159:3, 159:14, 159:23, 159:24, 160:21, 161:2, 161:6, 162:3, 162:14, 162:16, 162:25, 163:2, 163:16, 164:2, 164:25, 165:4, 169:4, 169:6, 169:21, 170:25, 172:3, 172:15, 172:20, 173:5, 173:15, 174:15, 175:25,	

exposed [1] - 55:6
express [6] - 57:6,
 291:19, 291:22,
 291:24, 299:23,
 301:7
expressed [1] - 452:4
expressing [1] - 79:4
expressly [2] - 215:13,
 409:17
extensive [8] - 49:8,
 51:24, 53:23, 69:6,
 76:12, 415:4,
 417:11, 427:8
extent [9] - 40:24,
 157:20, 265:9,
 265:24, 268:5,
 268:10, 366:16,
 404:10, 441:4
external [5] - 353:25,
 393:8, 394:4, 394:5,
 394:12
extra [2] - 46:25, 210:8
extremes [1] - 386:10
eye [1] - 11:17
eyes [1] - 283:22

F

face [6] - 22:13, 82:23,
 123:4, 139:25,
 293:17, 339:1
faced [1] - 187:23
faces [1] - 82:14
facilitate [1] - 262:9
facility [1] - 11:22
facing [1] - 130:14
fact [71] - 11:24, 12:6,
 16:22, 22:12, 23:17,
 24:12, 24:21, 27:5,
 27:24, 28:6, 28:22,
 29:7, 29:12, 30:3,
 39:14, 39:16, 41:4,
 66:15, 79:2, 89:3,
 108:13, 114:20,
 116:19, 121:3,
 139:24, 143:22,
 169:1, 182:8,
 212:15, 233:20,
 238:21, 240:4,
 251:2, 255:14,
 259:7, 259:8,
 276:17, 281:21,
 290:16, 300:16,
 301:8, 301:11,
 302:9, 303:5,
 303:12, 306:18,
 308:6, 308:16,
 315:9, 320:7,
 320:10, 324:3,
 326:13, 329:22,

331:24, 335:3,
 337:11, 374:1,
 374:23, 375:24,
 375:25, 378:1,
 382:14, 384:5,
 385:1, 423:3,
 424:20, 426:10,
 433:15, 434:5,
 434:11
fact-finding [4] -
 27:24, 28:6, 28:22,
 29:7
factor [26] - 50:17,
 169:19, 207:11,
 222:22, 223:9,
 243:22, 350:3,
 350:25, 364:23,
 369:17, 369:21,
 369:22, 369:23,
 370:14, 372:8,
 373:22, 374:2,
 374:4, 381:12,
 381:16, 415:8,
 427:22, 427:23,
 428:9, 429:24,
 450:21
factors [34] - 16:19,
 17:14, 34:4, 48:24,
 68:10, 176:3,
 190:10, 206:2,
 238:16, 253:1,
 290:11, 315:6,
 327:17, 328:10,
 349:10, 350:17,
 351:23, 352:3,
 352:4, 356:1, 356:9,
 356:12, 356:17,
 356:19, 358:4,
 358:8, 360:20,
 360:21, 362:9,
 362:22, 362:23,
 366:8, 388:7, 428:2
facts [17] - 10:18,
 19:25, 28:9, 30:24,
 41:17, 267:12,
 290:2, 323:2, 323:4,
 323:10, 324:7,
 375:22, 402:8,
 404:17, 404:18
factual [2] - 8:19,
 456:16
faculty [1] - 154:16
Fahrenheit [1] -
 352:23
failed [4] - 207:10,
 331:6, 358:13,
 372:12
failing [2] - 37:11,
 448:15
failure [6] - 14:14,

36:25, 37:8, 38:21,
 38:22, 38:23
fair [46] - 26:24, 27:3,
 41:3, 41:13, 42:12,
 45:17, 57:14, 57:17,
 116:4, 118:10,
 119:18, 140:2,
 196:13, 204:9,
 204:11, 207:6,
 221:7, 221:8, 222:7,
 223:12, 223:18,
 227:4, 228:16,
 228:17, 234:23,
 236:16, 236:18,
 236:24, 241:9,
 263:3, 269:25,
 270:15, 271:21,
 273:18, 275:11,
 284:18, 284:20,
 285:12, 288:3,
 323:13, 374:2,
 421:4, 455:5,
 455:15, 455:21
fairer [3] - 200:8,
 200:12, 206:13
fairly [1] - 287:20
fairness [4] - 27:7,
 27:9, 27:11, 46:24
faith [1] - 366:9
fall [2] - 79:3, 365:16
fallen [1] - 378:9
falls [3] - 179:21,
 282:12, 389:23
familiar [12] - 66:11,
 83:7, 230:21,
 230:24, 230:25,
 231:1, 252:25,
 330:2, 384:5, 434:5,
 434:11
family [1] - 90:23
fan [1] - 384:3
far [10] - 31:9, 32:5,
 39:1, 39:11, 78:21,
 101:11, 189:12,
 195:7, 275:12,
 448:14
Fahrenheit [2] - 365:25,
 366:1
Farley [6] - 299:20,
 299:21, 306:15,
 306:17, 306:19,
 307:2
farley [1] - 306:25
fashion [3] - 269:17,
 327:23, 338:21
fat [2] - 12:17, 63:9
fault [2] - 16:8, 16:9
favorable [1] - 191:18
Favre [2] - 44:23, 45:9
FDA [1] - 165:15

featured [1] - 205:16
February [14] - 84:20,
 99:6, 103:25,
 109:13, 111:1,
 111:11, 111:25,
 112:4, 140:19,
 313:8, 332:15,
 333:12, 333:19,
 337:13
federal [1] - 282:21
feel-oriented [1] -
 49:24
feelings [1] - 57:6
FELD [1] - 2:19
fell [2] - 88:14, 352:5
fellow [1] - 412:20
felony [1] - 151:23
felt [34] - 10:18, 12:16,
 12:17, 13:8, 23:22,
 52:12, 55:22, 56:19,
 57:3, 57:4, 57:10,
 57:12, 58:1, 58:25,
 59:3, 62:24, 63:9,
 68:11, 71:2, 71:10,
 72:15, 72:16, 72:22,
 93:2, 120:6, 121:6,
 134:20, 252:22,
 257:15, 316:12,
 316:18, 317:7,
 340:12, 391:7
few [22] - 24:2, 42:16,
 88:13, 90:10, 91:10,
 91:13, 91:23, 91:24,
 92:21, 121:1, 139:2,
 188:25, 216:10,
 251:9, 252:21,
 253:8, 255:8, 282:7,
 322:4, 331:13,
 340:18, 417:10
fiancé [6] - 62:17,
 62:18, 277:19,
 278:7, 278:9, 278:11
field [33] - 50:14, 51:3,
 52:1, 52:3, 55:24,
 57:23, 59:23, 72:6,
 72:7, 137:7, 170:7,
 170:12, 170:21,
 220:17, 220:23,
 291:1, 307:14,
 307:20, 308:5,
 309:3, 314:23,
 352:25, 365:24,
 372:3, 372:23,
 384:6, 384:17,
 384:22, 385:11,
 385:14, 394:8,
 455:10
fifteen [1] - 423:22
Figueroa [1] - 4:4
figure [16] - 16:25,

18:18, 144:11,
 144:12, 169:24,
 174:15, 202:10,
 209:3, 241:23,
 328:4, 328:9,
 328:19, 346:16,
 397:14, 403:6,
 403:16
Figure [16] - 169:23,
 172:18, 198:9,
 204:18, 223:10,
 353:10, 353:14,
 382:23, 387:7,
 397:4, 397:7, 397:9,
 397:25, 403:22,
 405:17, 445:4
figured [4] - 128:20,
 314:24, 314:25,
 423:12
figures [5] - 160:16,
 163:2, 241:24,
 398:13, 403:1
file [1] - 246:6
filed [1] - 6:12
files [1] - 149:20
film [1] - 128:17
final [8] - 67:12, 184:7,
 188:25, 252:14,
 265:6, 314:9,
 413:14, 429:12
finally [8] - 21:6,
 27:14, 41:3, 45:19,
 258:14, 315:4,
 342:4, 423:12
Finally [1] - 335:22
finances [1] - 154:7
financial [1] - 153:20
finder [6] - 301:11,
 303:4, 303:12,
 324:3, 326:13,
 329:22
findings [26] - 10:8,
 10:17, 158:4,
 158:13, 158:15,
 158:19, 158:20,
 165:12, 186:11,
 188:4, 194:13,
 207:20, 269:18,
 273:7, 286:6,
 326:14, 330:17,
 331:1, 359:12,
 406:5, 414:13,
 424:21, 435:15,
 435:18, 445:14,
 447:22
Fine [1] - 322:17
fine [12] - 26:11,
 26:19, 45:13, 45:15,
 72:16, 213:15,
 219:8, 242:19,

267:21, 284:16,
343:13, 343:14
fined [2] - 45:1, 45:3
fining [1] - 45:10
finish [12] - 202:2,
246:8, 294:16,
383:13, 385:25,
386:4, 391:9,
391:19, 402:12,
402:17, 409:7, 454:1
Finish [1] - 246:10
finishing [2] - 183:4,
401:14
fired [2] - 57:14,
154:19
firm [13] - 155:6,
156:17, 195:15,
195:17, 261:13,
263:13, 268:7,
271:9, 281:25,
283:8, 284:19,
347:14
firms [1] - 195:20
first [145] - 8:8, 10:23,
13:9, 14:16, 18:9,
21:11, 22:2, 23:14,
26:11, 26:13, 26:20,
29:2, 29:6, 33:20,
34:18, 37:19, 39:7,
42:16, 47:1, 47:6,
48:18, 52:16, 57:7,
57:25, 58:15, 69:19,
73:1, 73:10, 73:21,
74:8, 76:7, 79:25,
87:1, 87:16, 98:10,
102:12, 105:16,
118:20, 126:17,
127:22, 128:10,
128:25, 131:1,
138:20, 139:19,
150:9, 151:20,
158:18, 158:22,
159:18, 160:9,
163:23, 168:4,
168:15, 170:16,
176:14, 176:20,
179:15, 182:13,
190:6, 191:9,
191:19, 197:18,
199:5, 199:9,
199:10, 201:3,
201:12, 201:24,
202:9, 224:20,
224:25, 227:21,
229:10, 229:11,
229:14, 229:22,
230:24, 239:3,
242:22, 253:9,
253:15, 255:25,
261:4, 263:9, 264:7,

265:3, 269:23,
269:24, 272:2,
272:17, 281:9,
282:7, 282:8, 287:5,
287:16, 290:20,
303:14, 308:11,
322:5, 327:23,
328:6, 329:3, 330:5,
331:24, 337:21,
341:19, 343:1,
345:4, 350:20,
350:24, 352:24,
354:13, 359:16,
380:23, 380:25,
381:1, 381:5,
381:15, 389:10,
389:14, 389:17,
396:21, 397:20,
399:5, 401:7,
403:16, 406:21,
406:23, 408:9,
408:17, 411:19,
414:25, 418:12,
421:2, 421:17,
421:19, 423:5,
424:23, 438:22,
439:16, 444:9,
445:16, 446:12,
449:7
first-class [2] - 281:9,
444:9
first-half [1] - 182:13
fit [1] - 387:6
five [27] - 42:14,
55:13, 131:2, 134:6,
149:2, 165:2,
166:20, 181:21,
194:17, 343:20,
344:25, 354:17,
386:8, 395:22,
401:13, 402:17,
418:11, 419:21,
420:7, 420:18,
432:12, 432:14,
432:17, 432:23,
433:12, 433:15,
451:4
five-minute [1] -
343:20
five-percent [3] -
165:2, 432:17, 451:4
fixed [2] - 19:10, 366:6
flat [3] - 53:15, 182:18,
182:20
flattens [1] - 183:5
flaw [1] - 370:20
flawed [2] - 203:25,
331:6
flaws [1] - 438:15
flexibility [1] - 226:18

flexible [2] - 227:6,
321:23
flip [2] - 50:1, 176:21
flipped [1] - 224:9
flipping [1] - 221:23
flowed [1] - 296:20
flowing [1] - 393:11
fluctuations [4] -
224:20, 225:1,
363:4, 432:21
focus [22] - 6:22,
73:25, 74:1, 74:7,
141:20, 142:8,
151:7, 151:15,
162:7, 169:3, 170:4,
171:19, 174:3,
174:4, 182:14,
197:18, 205:1,
205:22, 206:20,
215:18, 346:10,
346:11
focused [13] - 48:5,
134:17, 141:22,
141:25, 142:19,
156:25, 158:1,
160:5, 200:5,
290:21, 291:3,
291:8, 291:10
focuses [3] - 155:5,
157:19, 198:1
focusing [2] - 52:9,
166:8
folders [1] - 90:21
follow [10] - 6:18,
158:12, 238:8,
247:14, 259:17,
268:2, 268:3, 305:8,
360:4, 443:18
follow-up [3] - 238:8,
247:14, 443:18
followed [4] - 106:17,
126:18, 337:11,
431:5
following [27] - 15:7,
28:25, 37:18, 45:6,
59:14, 74:13, 74:14,
99:5, 103:15, 106:6,
108:15, 108:20,
124:25, 129:15,
156:21, 167:7,
224:17, 237:16,
248:1, 252:18,
266:9, 273:11,
330:12, 340:25,
376:14, 408:3,
418:19
follows [13] - 16:14,
47:8, 150:11,
171:24, 171:25,
203:24, 227:23,

261:6, 280:3, 287:4,
345:6, 411:21,
439:18
food [1] - 148:12
FOOTBALL [6] - 1:1,
2:3, 2:15, 2:20, 3:3,
3:9
football [64] - 12:1,
35:10, 40:9, 49:9,
54:5, 56:4, 56:19,
57:23, 58:1, 116:8,
116:10, 116:18,
116:24, 120:11,
120:15, 120:25,
121:6, 121:7, 133:2,
133:3, 169:10,
172:9, 172:10,
172:13, 199:25,
212:9, 225:2,
228:13, 231:17,
236:1, 246:12,
248:8, 248:19,
251:16, 254:2,
254:13, 254:18,
254:24, 256:15,
256:19, 257:18,
257:20, 259:21,
260:2, 328:12,
351:4, 351:5,
351:10, 351:22,
352:11, 353:12,
353:15, 354:1,
384:3, 384:20,
393:7, 393:11,
393:15, 393:23,
394:2, 394:11,
396:2, 397:22
Football [9] - 1:14,
24:13, 24:22, 25:1,
228:6, 228:7, 228:9,
249:25, 257:21
footballs [104] - 11:12,
11:23, 11:25, 12:3,
23:12, 23:18, 33:3,
33:5, 34:10, 34:20,
35:3, 35:14, 35:21,
48:20, 50:25, 51:7,
51:14, 51:19, 52:12,
55:12, 60:9, 64:7,
64:21, 65:4, 65:5,
67:15, 68:24, 69:21,
75:6, 76:13, 77:3,
79:16, 85:21, 90:1,
94:1, 96:13, 97:9,
103:17, 112:25,
113:5, 113:11,
113:14, 114:8,
115:13, 116:5,
133:6, 134:18,
135:1, 135:2, 140:6,

141:11, 141:14,
141:17, 143:18,
143:24, 144:7,
147:8, 147:17,
167:9, 167:21,
192:2, 200:20,
208:24, 220:23,
220:25, 222:24,
228:19, 229:12,
230:23, 231:9,
231:25, 234:7,
234:15, 243:3,
245:24, 246:3,
248:21, 249:21,
250:17, 254:20,
255:15, 257:10,
263:16, 273:24,
282:11, 288:2,
327:10, 327:15,
327:20, 349:4,
351:12, 351:18,
351:20, 352:10,
353:3, 356:21,
357:4, 363:8, 372:2,
394:18, 421:20,
443:11
footnote [8] - 211:19,
212:5, 212:6,
212:14, 212:23,
300:17, 318:9,
430:14
Footnote [5] - 212:14,
360:11, 430:23,
431:17, 431:18
footwear [1] - 83:6
forces [2] - 290:14,
314:14
Foreign [1] - 26:3
forensic [10] - 14:9,
15:20, 101:15,
101:17, 102:1,
102:24, 103:4,
104:21, 107:14,
112:5
forensically [1] -
149:22
forensics [2] - 101:12
forget [7] - 287:2,
292:13, 293:16,
318:10, 320:11,
442:24, 453:9
form [5] - 243:11,
331:9, 381:4,
429:12, 442:4
formal [1] - 6:7
former [5] - 152:2,
156:15, 236:9,
245:17, 322:13
Formula [2] - 184:2,
184:4

formula [7] - 153:18,
185:11, 188:16,
219:21, 219:23,
288:11, 364:20
forth [17] - 54:7,
90:23, 239:21,
265:2, 303:7,
332:14, 332:19,
337:12, 341:1,
341:4, 344:1,
355:10, 371:22,
437:12, 444:16,
444:23, 450:8
forthcoming [1] -
338:23
forward [3] - 6:14,
119:13, 190:12
forwards [1] - 173:15
foundation [3] -
414:23, 421:2,
422:17
four [52] - 20:10, 48:2,
48:7, 49:18, 54:4,
55:13, 59:16, 67:14,
88:15, 125:4, 126:5,
126:12, 150:22,
160:3, 164:22,
166:9, 177:6,
192:21, 192:22,
193:3, 236:21,
240:8, 240:13,
249:9, 298:24,
298:25, 318:14,
318:15, 318:18,
318:19, 318:20,
319:13, 322:8,
322:18, 347:22,
362:9, 368:23,
369:6, 382:5,
391:10, 391:11,
400:18, 401:1,
401:23, 406:12,
413:23, 416:1,
418:11, 421:20,
423:24, 437:4, 437:8
four-hour [1] - 20:10
fourth [1] - 205:20
Foxborough [1] -
335:6
framed [1] - 138:22
framework [4] -
156:25, 158:11,
159:13, 172:21
frankly [8] - 18:3,
28:4, 208:9, 413:16,
415:16, 420:8,
438:20, 444:6
fraud [1] - 325:2
free [4] - 43:12, 87:2,
454:13

freezes [2] - 447:19,
447:21
freezing [1] - 23:22
frequently [5] -
195:21, 195:24,
407:12, 407:14,
441:23
freshman [1] - 423:2
Friday [4] - 68:21,
133:15, 146:4, 147:1
front [16] - 6:25,
98:19, 101:24,
124:12, 124:14,
222:13, 262:1,
262:24, 305:11,
321:8, 336:12,
340:6, 350:13,
360:2, 361:22,
366:25
frozen [4] - 221:5,
257:13, 257:16,
257:23
Fuck [1] - 275:17
fucked [1] - 92:21
fucking [1] - 92:13
full [7] - 97:23, 150:14,
169:6, 215:13,
244:6, 261:10,
285:24
fully [4] - 35:23, 205:9,
287:1, 443:24
function [1] - 354:1
functioning [1] -
351:18
furthermore [1] -
447:15
FYI [2] - 94:19, 144:23

G

Gabe [1] - 347:19
Gabe's [1] - 281:12
gain [2] - 24:15, 69:9
Galanis [1] - 307:18
game [331] - 12:11,
12:13, 12:14, 13:6,
19:19, 22:9, 22:20,
23:13, 23:25, 24:6,
24:9, 31:15, 31:17,
31:20, 33:17, 35:25,
37:23, 40:15, 48:15,
49:4, 49:11, 49:12,
49:22, 50:3, 51:1,
51:25, 52:5, 52:7,
52:13, 52:15, 52:16,
54:2, 54:16, 54:23,
54:24, 54:25, 55:4,
55:9, 55:14, 55:22,
56:1, 56:2, 56:4,
56:7, 56:24, 57:6,
57:13, 57:15, 57:20,
58:2, 58:6, 58:7,
58:11, 59:14, 61:13,
62:10, 62:14, 62:19,
63:4, 63:5, 63:14,
67:3, 67:4, 67:9,
68:20, 68:24, 69:2,
69:5, 70:4, 70:10,
70:11, 71:13, 71:22,
71:23, 72:9, 72:10,
72:11, 72:19, 73:2,
73:4, 73:7, 73:12,
73:15, 74:1, 74:8,
74:9, 74:11, 76:2,
76:20, 77:11, 77:14,
80:19, 82:9, 82:10,
92:10, 93:2, 93:17,
93:23, 93:24, 94:2,
94:5, 94:6, 113:18,
114:10, 114:13,
114:21, 115:4,
115:5, 115:8,
115:16, 116:10,
116:12, 116:14,
116:16, 117:17,
117:18, 117:23,
118:1, 118:6,
118:18, 119:2,
119:15, 121:16,
121:19, 122:5,
123:8, 123:9,
123:10, 123:15,
133:12, 142:21,
159:13, 163:5,
163:25, 170:3,
170:10, 170:18,
170:19, 172:23,
183:18, 186:5,
186:20, 187:2,
189:23, 190:13,
191:22, 192:12,
192:21, 193:1,
193:7, 193:11,
193:14, 193:18,
193:25, 197:15,
199:4, 200:17,
200:18, 200:23,
206:3, 215:21,
215:24, 216:4,
216:8, 217:3,
217:11, 217:14,
218:6, 218:7,
221:10, 221:17,
222:25, 228:12,
228:14, 228:16,
229:7, 229:24,
230:9, 231:2, 231:3,
231:4, 231:14,
232:1, 232:14,
233:14, 233:16,
233:17, 233:20,

233:22, 234:5,
234:7, 234:11,
234:13, 234:18,
235:25, 237:25,
238:1, 238:3,
238:21, 239:19,
240:12, 241:5,
246:11, 246:12,
246:17, 246:20,
247:6, 248:4,
248:22, 249:4,
249:5, 249:7,
249:13, 250:5,
252:2, 252:4, 252:5,
253:18, 253:22,
254:18, 254:19,
257:4, 257:8,
257:14, 257:17,
257:23, 259:23,
259:24, 259:25,
272:4, 273:17,
274:18, 276:4,
276:7, 276:11,
276:20, 277:3,
278:8, 282:11,
291:15, 292:18,
298:16, 298:17,
298:20, 299:1,
299:4, 301:1,
307:20, 310:12,
310:16, 318:7,
318:17, 318:20,
328:22, 329:5,
349:19, 352:21,
352:22, 353:12,
354:19, 355:13,
356:20, 357:22,
357:24, 358:7,
358:11, 358:16,
358:18, 358:20,
358:23, 359:6,
363:22, 364:9,
364:17, 365:1,
365:2, 365:14,
365:17, 366:19,
366:24, 368:19,
368:24, 369:10,
370:5, 375:8,
375:13, 375:18,
376:8, 376:9,
376:16, 378:3,
382:17, 384:6,
384:10, 384:11,
388:13, 389:5,
390:5, 394:19,
396:5, 400:18,
401:10, 401:23,
406:16, 406:17,
407:2, 407:6,
407:16, 408:8,
408:13, 409:11,

409:21, 414:3,
414:6, 424:22,
425:19, 427:3,
443:4, 444:2, 447:1,
451:6, 451:9,
451:15, 452:2,
454:23, 455:7,
455:18
Game [47] - 18:6,
24:24, 25:7, 33:3,
37:19, 41:7, 66:22,
67:13, 68:16, 68:17,
68:19, 69:20, 78:10,
85:23, 94:17, 96:12,
99:9, 103:12,
103:15, 103:20,
121:2, 123:1, 124:8,
124:25, 125:2,
125:22, 141:21,
143:19, 146:1,
155:8, 189:3, 217:4,
229:13, 229:16,
231:7, 250:20,
251:11, 261:17,
263:17, 288:3,
293:9, 296:19,
304:11, 306:8,
327:18, 334:8, 359:1
Game-Day [3] - 25:7,
231:7, 250:20
game-day [28] - 123:8,
190:13, 197:15,
199:4, 228:16,
231:2, 310:16,
328:22, 329:5,
349:19, 353:12,
358:7, 358:18,
358:20, 358:23,
366:19, 384:10,
384:11, 388:13,
389:5, 390:5,
401:10, 406:16,
408:13, 409:11,
409:21, 443:4, 444:2
games [13] - 23:18,
48:20, 49:2, 77:3,
122:14, 230:23,
234:2, 249:5,
249:10, 255:5,
377:24, 378:11,
378:14
gaming [1] - 350:21
Ganot [1] - 347:19
gap [11] - 39:18,
103:1, 103:7,
103:10, 103:14,
103:19, 104:4,
107:16, 107:18,
112:4, 112:20
Gardi [8] - 227:17,

237:18, 237:21, 239:14, 240:11, 241:11, 241:17, 242:1 Gardi's [1] - 240:25 Garrison [1] - 263:13 GARRISON [1] - 3:15 Gary [1] - 152:16 gas [36] - 16:16, 18:3, 19:24, 33:22, 184:19, 188:16, 189:14, 219:16, 219:21, 219:23, 220:4, 220:14, 220:21, 221:2, 221:11, 231:5, 237:13, 252:25, 280:5, 280:6, 288:1, 288:6, 288:8, 288:13, 290:23, 314:19, 364:19, 365:12, 365:16, 365:23, 365:24, 366:2, 371:25, 375:21, 426:6 Gas [8] - 18:9, 184:2, 184:4, 220:10, 231:9, 372:4, 393:25, 394:5 gatekeeper [1] - 360:3 Gauge [1] - 17:10 gauge [264] - 17:11, 159:12, 161:9, 161:15, 162:2, 163:11, 183:17, 184:21, 184:22, 184:25, 185:1, 185:7, 185:10, 185:13, 185:23, 185:25, 186:1, 186:6, 186:7, 186:8, 186:10, 186:12, 186:13, 186:19, 186:24, 186:25, 187:2, 187:7, 187:11, 188:1, 188:2, 188:13, 189:19, 191:14, 191:23, 214:21, 215:3, 215:20, 216:3, 216:18, 216:19, 216:21, 217:5, 217:6, 217:7, 217:8, 217:16, 217:20, 218:9, 218:10, 218:12, 218:16, 218:24, 219:3, 219:4, 219:24, 221:10, 221:19, 221:21,	221:22, 232:2, 232:3, 232:5, 232:10, 232:11, 232:14, 232:15, 232:18, 240:23, 240:25, 241:4, 241:7, 259:8, 291:16, 291:17, 291:22, 291:23, 292:5, 292:9, 294:5, 294:8, 294:10, 295:1, 295:5, 295:8, 295:9, 295:22, 295:25, 296:3, 296:4, 296:7, 296:13, 296:14, 296:21, 297:5, 297:7, 297:10, 297:13, 297:16, 297:24, 299:11, 299:16, 299:17, 299:18, 300:10, 301:7, 301:13, 301:21, 301:25, 302:3, 302:4, 302:11, 302:22, 302:24, 303:2, 303:6, 303:13, 306:16, 316:1, 316:4, 316:7, 316:8, 316:9, 319:24, 319:25, 323:25, 352:11, 353:17, 353:18, 355:5, 355:15, 355:17, 363:21, 364:4, 364:5, 364:6, 364:13, 364:17, 365:13, 365:17, 366:15, 366:18, 366:22, 366:23, 366:24, 367:3, 367:8, 368:18, 368:19, 368:25, 369:1, 372:14, 372:16, 372:17, 372:18, 372:19, 374:14, 374:16, 374:20, 374:22, 374:24, 375:2, 375:5, 375:9, 375:10, 375:15, 375:16, 375:17, 376:6, 376:10, 376:15, 376:16, 376:22, 377:1, 377:14, 377:15, 377:18, 377:19, 377:21, 377:24, 377:25, 378:4, 378:7, 378:12,	378:15, 378:20, 378:24, 379:4, 379:5, 379:11, 391:25, 392:1, 392:2, 392:3, 392:5, 392:10, 392:13, 392:17, 397:22, 403:1, 403:2, 403:12, 403:17, 404:6, 404:8, 404:9, 404:11, 405:1, 405:2, 405:12, 405:15, 405:19, 408:7, 408:8, 408:20, 410:4, 414:3, 414:4, 414:5, 414:6, 419:6, 421:19, 423:14, 423:16, 423:18, 423:21, 423:22, 424:3, 424:5, 424:10, 424:11, 424:12, 424:13, 424:22, 426:1, 426:14, 426:17, 426:20, 426:21, 426:22, 426:25, 427:3, 427:4, 427:7, 446:25, 447:8, 447:9, 447:12, 447:14 gauged [3] - 293:23, 293:24, 455:11 gauges [81] - 161:3, 163:4, 184:20, 187:20, 189:10, 189:20, 189:22, 189:24, 192:1, 200:23, 216:15, 218:13, 218:18, 218:21, 219:5, 219:6, 219:7, 219:8, 221:17, 231:24, 231:25, 232:3, 232:4, 232:7, 232:8, 232:22, 232:24, 240:13, 240:16, 240:18, 240:21, 240:24, 282:5, 282:8, 296:11, 296:12, 296:19, 300:25, 301:19, 301:23, 315:23, 315:25, 316:1, 316:11, 320:1, 320:9, 320:13, 350:1, 355:4, 355:6, 355:7, 355:12, 369:9, 376:25, 377:4, 377:7, 377:16, 377:20,	378:17, 378:21, 378:22, 378:25, 379:2, 379:16, 379:17, 379:18, 379:19, 379:21, 380:4, 380:6, 413:24, 415:25, 426:12, 426:15 gee [2] - 15:6, 438:23 geez [1] - 364:16 General [5] - 3:5, 3:6, 152:3, 229:17, 266:7 general [16] - 9:13, 21:25, 22:11, 49:2, 99:7, 157:11, 157:13, 158:8, 209:17, 209:18, 314:18, 428:21, 433:9, 434:18, 435:2, 436:6 generally [28] - 9:1, 9:9, 9:11, 9:16, 13:14, 19:14, 21:12, 22:5, 22:6, 23:21, 27:2, 30:12, 42:24, 43:2, 75:17, 177:13, 234:2, 236:15, 243:1, 246:2, 248:20, 249:10, 250:9, 251:15, 257:15, 273:14, 274:2, 435:20 generated [5] - 203:2, 204:17, 209:13, 352:15, 432:3 gentlemen [1] - 274:7 gently [1] - 120:24 George [1] - 150:25 GIBSON [1] - 3:20 given [47] - 9:4, 20:10, 22:12, 22:13, 22:15, 22:16, 22:17, 22:19, 25:18, 28:15, 30:19, 51:12, 98:12, 108:1, 152:18, 156:24, 156:25, 158:11, 159:13, 174:21, 183:20, 206:2, 206:4, 220:8, 231:18, 250:23, 250:24, 251:3, 272:14, 272:18, 273:2, 296:12, 304:21, 305:9, 313:9, 313:10, 313:17, 313:23, 321:21, 323:16, 342:8, 348:7, 399:24, 400:3, 400:5, 408:16, 413:4	gland [1] - 351:14 Glaser [2] - 300:9, 300:14 glaser [2] - 300:16, 306:18 glazer [1] - 307:1 glove [4] - 12:8, 398:18, 401:12, 402:18 gloved [1] - 399:17 gloves [5] - 26:5, 53:6, 53:8, 258:1, 396:12 gloving [18] - 69:7, 396:2, 396:8, 396:10, 396:20, 396:22, 396:23, 396:25, 397:2, 397:3, 397:10, 397:15, 398:10, 398:14, 399:1, 399:6, 399:15 GMs [2] - 22:25, 250:23 GOLD [2] - 3:18, 198:25 Goldberg [15] - 117:21, 313:11, 313:12, 313:14, 313:16, 313:17, 313:18, 313:20, 313:24, 314:1, 314:3, 329:9, 329:11, 332:14 golf [3] - 120:21, 120:22, 120:23 Goodell [6] - 99:8, 105:12, 111:6, 309:22, 309:25, 337:5 GOODELL [143] - 1:19, 2:4, 6:5, 7:8, 7:18, 48:13, 49:16, 52:23, 54:12, 54:15, 54:18, 56:1, 56:9, 59:13, 59:17, 60:14, 60:18, 60:21, 60:24, 61:12, 61:15, 62:6, 62:9, 65:18, 65:21, 65:24, 66:2, 67:1, 68:15, 69:13, 69:16, 69:19, 70:4, 70:13, 70:19, 70:22, 71:1, 71:8, 71:12, 71:14, 72:8, 74:20, 80:11, 80:15, 88:7, 88:17, 88:23, 89:2, 89:14, 99:21, 99:24, 109:21, 117:3, 117:6, 117:9, 117:13, 117:16,
--	--	--	--	--

117:22, 117:25,
122:19, 124:18,
125:20, 128:1,
133:10, 133:16,
136:13, 136:19,
137:11, 137:14,
137:16, 145:24,
146:4, 146:7,
146:10, 146:14,
146:16, 146:18,
146:22, 146:25,
147:5, 147:10,
147:15, 147:23,
148:4, 148:6,
148:10, 148:14,
148:18, 149:1,
155:17, 155:23,
156:4, 168:7,
168:14, 168:23,
170:9, 170:14,
170:17, 170:22,
177:5, 178:1, 180:1,
180:11, 180:13,
180:17, 180:20,
189:21, 192:11,
194:18, 221:25,
225:19, 226:6,
227:19, 230:3,
230:6, 233:13,
252:2, 256:23,
257:1, 260:20,
277:15, 386:4,
396:7, 397:11,
398:3, 398:6, 399:8,
400:16, 400:20,
400:25, 401:15,
401:19, 401:22,
402:1, 402:12,
402:15, 404:1,
436:9, 439:14,
454:1, 454:4,
454:15, 457:4
Gostkowski [4] -
121:6, 335:7,
341:11, 341:24
Government [2] - 2:7,
347:17
grab [4] - 49:25,
306:1, 382:8, 382:9
gradient [1] - 393:16
gradients [1] - 393:12
graduate [1] - 210:25
graduates [1] - 281:7
grant [1] - 226:17
granted [1] - 226:25
graph [4] - 174:14,
405:16, 410:9,
410:12
graphs [3] - 380:21,
404:17, 445:6

great [5] - 312:17,
312:18, 315:23,
344:11
greater [8] - 164:15,
173:2, 180:16,
182:10, 199:24,
200:17, 354:20,
367:23
greatest [1] - 428:3
Greek [1] - 430:10
Green [1] - 64:11
Greenberg [1] -
155:15
Greenspan [1] - 150:4
GREENSPAN [6] -
3:11, 150:6, 150:13,
194:14, 203:15,
225:18
Gregg [5] - 6:16, 6:22,
6:25, 7:2, 148:14
GREGG [2] - 2:12,
2:23
Grigson [1] - 229:18
grip [9] - 35:4, 50:12,
53:14, 55:7, 55:20,
57:3, 116:18,
120:13, 120:16
gripping [2] - 49:7,
120:21
grossly [2] - 115:17,
120:9
grounds [2] - 7:22,
266:6
Group [2] - 155:14,
412:4
group [14] - 155:14,
155:18, 156:2,
156:7, 164:21,
165:25, 193:5,
195:12, 195:14,
195:21, 196:3,
196:19, 345:16,
345:17
guarantee [1] - 282:23
guess [16] - 19:3,
27:16, 54:19, 79:4,
87:9, 101:13,
114:17, 148:11,
170:15, 225:11,
350:24, 373:11,
398:1, 425:22,
438:10, 441:12
guessing [1] - 89:6
guest [1] - 307:7
guidance [5] - 169:7,
173:25, 182:15,
208:8, 208:9
guilty [1] - 338:22
GUMP [1] - 2:19
guy [8] - 69:24, 91:4,

117:7, 120:3,
312:17, 312:18,
330:6
guys [5] - 135:15,
146:10, 146:18,
148:12, 265:22
gym [1] - 294:21

H

Hadron [1] - 441:3
half [56] - 13:9, 13:10,
57:8, 59:11, 59:25,
73:1, 73:10, 73:11,
73:15, 73:19, 73:21,
74:4, 111:20,
111:21, 118:21,
118:22, 118:23,
119:11, 126:17,
148:13, 148:20,
168:12, 168:14,
168:24, 170:16,
175:5, 177:1, 177:2,
177:21, 179:6,
182:13, 190:6,
191:9, 229:16,
230:4, 239:21,
239:22, 309:2,
319:16, 350:24,
364:16, 369:24,
375:10, 375:11,
378:9, 390:15,
390:17, 397:23,
399:12, 399:24,
406:21, 406:23,
419:22
halftime [117] - 13:12,
33:2, 72:25, 73:6,
159:5, 159:25,
160:7, 163:25,
168:3, 168:6, 170:5,
172:6, 176:13,
180:8, 181:5, 181:6,
184:1, 185:9,
185:24, 186:16,
187:12, 187:21,
192:25, 193:4,
193:15, 193:17,
193:23, 199:23,
200:21, 200:23,
204:22, 205:3,
206:6, 206:9,
211:15, 215:14,
216:3, 221:6,
221:12, 222:15,
222:23, 222:25,
224:5, 224:6,
224:14, 225:8,
230:12, 233:22,
234:3, 234:20,
234:21, 234:25,

235:3, 235:7, 238:2,
239:7, 251:11,
288:19, 288:25,
290:18, 291:4,
292:20, 292:25,
298:16, 318:15,
318:21, 318:23,
327:13, 327:21,
339:25, 349:7,
349:19, 349:24,
352:22, 354:14,
354:18, 354:24,
358:2, 358:5,
361:14, 370:2,
370:3, 374:15,
375:1, 376:24,
394:19, 403:6,
405:11, 406:9,
407:17, 413:16,
413:19, 413:21,
415:15, 417:3,
420:10, 421:10,
421:12, 424:8,
426:13, 427:4,
428:18, 429:2,
429:15, 431:22,
431:23, 432:21,
433:14, 438:24,
438:25, 446:5,
449:22, 450:3,
451:5, 451:15,
452:11
hall [1] - 309:8
hallway [1] - 128:8
Hampshire [1] - 2:21
hand [10] - 50:12,
53:14, 116:22,
155:2, 160:23,
160:24, 198:23,
240:5, 403:22,
405:16
handed [2] - 84:3,
84:13
handful [1] - 434:9
handing [1] - 198:25
handle [2] - 120:23,
148:14
handled [1] - 257:20
handling [2] - 18:14,
384:10
hands [2] - 50:1,
355:6
hanging [1] - 312:20
happy [7] - 7:20,
14:20, 212:10,
224:18, 343:5,
413:9, 456:24
hard [13] - 56:5, 56:18,
63:9, 133:8, 135:16,
138:22, 196:11,

245:16, 338:24,
379:17, 391:18,
410:22, 453:6
Hargrove [2] - 45:3,
45:9
Hargrove's [1] - 45:7
Harvard [2] - 269:9,
269:10
Harvard-trained [2] -
269:9, 269:10
hasty [1] - 181:11
hated [1] - 55:24
HAUER [1] - 2:19
head [3] - 22:11, 99:8,
229:2
heading [1] - 129:11
headquarters [1] -
346:1
heads [2] - 94:23, 95:8
heads-up [2] - 94:23,
95:8
health [1] - 346:5
hear [25] - 8:11, 10:23,
10:24, 11:20, 12:15,
14:16, 20:19, 20:20,
28:24, 30:5, 32:10,
32:12, 37:9, 37:16,
38:4, 39:15, 43:10,
87:23, 100:10,
100:13, 180:1,
211:11, 331:12,
445:13, 456:11
heard [26] - 6:15, 7:24,
30:2, 30:4, 35:1,
35:18, 37:5, 40:15,
74:17, 74:21, 74:25,
81:16, 136:15,
200:4, 229:23,
231:5, 231:11,
269:7, 272:19,
272:23, 315:5,
330:1, 359:11,
369:17, 414:13,
455:20
Hearing [1] - 457:5
hearing [13] - 6:13,
6:14, 28:13, 28:25,
110:9, 110:17,
117:12, 121:11,
150:1, 270:17,
272:18, 456:7,
456:18
HEARING [1] - 1:8
heat [2] - 19:3, 23:18
heated [3] - 23:12,
257:24, 291:7
heaters [2] - 257:10,
257:14
Heather [1] - 226:11
HEATHER [1] - 3:5

heating [3] - 19:5, 41:9, 405:25
heavily [1] - 119:24
height [2] - 175:8, 175:9
held [6] - 21:22, 27:2, 46:5, 314:5, 412:13, 440:8
hell [2] - 64:16, 338:17
help [8] - 39:5, 155:9, 262:9, 280:15, 298:19, 327:7, 349:2, 392:7
helped [1] - 358:18
helpful [3] - 53:18, 124:11, 456:17
helping [2] - 348:1, 348:3
helps [1] - 420:9
hereby [1] - 457:8
hesitancy [1] - 285:23
hesitant [1] - 55:21
hesitating [2] - 274:20, 288:5
hesitation [1] - 340:1
hi [1] - 140:4
hide [2] - 85:18, 86:21
hiding [1] - 338:22
high [6] - 169:14, 294:10, 295:2, 348:15, 426:19, 435:13
higher [14] - 58:10, 162:4, 179:11, 184:22, 186:14, 219:5, 294:9, 325:16, 355:18, 382:22, 421:20, 426:14
highest [1] - 324:25
highlighted [5] - 59:10, 59:21, 119:4, 122:22, 225:3
highly [4] - 40:10, 377:10, 391:21, 444:7
Hill [1] - 24:13
hill [2] - 24:21, 249:24
Hillebrand [4] - 69:24, 70:1, 71:18, 120:3
himself [17] - 36:11, 43:16, 135:8, 246:12, 260:1, 273:23, 274:17, 307:14, 308:5, 308:11, 308:17, 308:24, 309:3, 309:9, 314:5, 316:22
hire [2] - 280:7, 283:1
hired [13] - 101:13,

101:15, 156:22, 261:15, 261:25, 266:24, 270:18, 283:2, 283:4, 283:24, 286:23, 287:18, 323:7
hiring [1] - 284:3
historically [3] - 114:17, 114:19, 117:19
history [11] - 20:24, 25:8, 25:10, 44:21, 45:13, 45:16, 46:9, 46:12, 46:13, 119:20, 378:14
hits [1] - 55:17
hmm [4] - 237:20, 245:8, 258:25, 431:12
hold [5] - 46:9, 120:24, 277:14, 412:9, 412:21
holding [1] - 46:16
hole [1] - 329:14
holes [1] - 219:2
home [5] - 80:20, 80:21, 128:18, 133:7, 133:19
honest [2] - 20:4, 75:18
honestly [1] - 11:16
honesty [1] - 149:14
hope [5] - 14:1, 263:5, 279:18, 280:12, 448:16
hopeful [1] - 336:3
hopefully [1] - 6:17
hoping [1] - 155:24
horizontal [1] - 170:1
host [1] - 74:24
hot [3] - 16:18, 291:6, 314:22
hotel [1] - 238:1
hour [12] - 20:10, 131:24, 148:13, 148:20, 226:9, 226:17, 226:18, 227:1, 227:6, 313:1, 343:5, 402:4
hours [15] - 67:11, 67:14, 68:24, 70:18, 86:5, 126:17, 226:14, 233:24, 352:24, 400:18, 401:1, 401:16, 401:23, 402:4, 402:5
hours' [1] - 226:9
house [2] - 294:12, 294:19
housekeeping [1] -

225:23
HR [1] - 154:13
huge [4] - 19:1, 192:5, 339:16, 433:21
human [5] - 34:6, 34:7, 34:11, 34:22, 209:2
hundreds [8] - 54:8, 294:11, 301:19, 302:1, 316:2, 355:5, 377:15, 378:16
Hunter [1] - 322:14
hurt [5] - 304:20, 304:24, 338:16, 339:3, 339:4
hydrometer [1] - 386:15
hypotheses [1] - 178:5

I

idea [21] - 13:6, 35:8, 38:7, 56:11, 75:9, 80:14, 104:24, 105:5, 122:2, 127:17, 164:12, 167:14, 167:15, 178:12, 181:9, 189:8, 189:9, 241:4, 296:2, 318:19, 368:3
ideal [36] - 16:16, 18:3, 19:23, 33:22, 184:19, 188:16, 189:14, 219:16, 219:21, 219:22, 220:3, 220:14, 220:21, 221:2, 221:11, 231:5, 237:13, 252:25, 280:5, 280:6, 288:1, 288:6, 288:8, 288:13, 290:23, 314:19, 364:19, 365:12, 365:16, 365:23, 366:2, 371:25, 375:21, 426:6
ideal [7] - 18:9, 184:1, 184:4, 220:10, 231:9, 372:4, 394:5
ideas [2] - 283:19, 329:7
identified [17] - 100:19, 140:12, 141:9, 157:13, 157:16, 157:21, 157:22, 163:24, 184:11, 243:21, 358:3, 358:25,

361:12, 363:20, 413:23, 414:16, 416:15
identifies [2] - 199:19, 203:1
identify [9] - 7:5, 140:24, 153:12, 163:4, 163:10, 207:10, 226:1, 327:16, 437:10
ignore [1] - 36:23
ignored [1] - 223:23
ignores [5] - 197:24, 359:19, 414:19, 445:19, 447:15
ill [1] - 2:6
ill [1] - 304:19
ill-advised [1] - 304:19
illegal [1] - 378:5
illustrates [1] - 45:10
imaginable [1] - 21:3
imagine [1] - 161:19
immediate [1] - 154:15
immediately [10] - 103:15, 172:9, 172:11, 174:8, 230:10, 247:6, 262:5, 391:15, 408:19, 416:1
impact [16] - 19:1, 175:13, 182:24, 187:15, 204:21, 231:8, 269:17, 282:10, 285:25, 288:9, 290:18, 314:20, 350:21, 351:8, 356:16, 428:3
impacts [1] - 328:20
implausible [2] - 38:6
implicate [1] - 334:15
implicit [1] - 419:14
implied [1] - 416:19
importance [7] - 160:16, 169:4, 169:25, 172:5, 175:24, 176:5, 439:5
important [41] - 7:21, 10:20, 12:23, 21:16, 21:17, 30:15, 31:14, 50:8, 50:9, 120:16, 158:2, 168:8, 169:7, 170:22, 173:21, 190:18, 191:21, 191:24, 198:11, 200:2, 200:4, 213:17, 221:20, 248:25, 334:4, 341:16, 341:18,

348:18, 360:18, 373:22, 396:24, 415:5, 416:24, 420:19, 427:22, 427:23, 428:6, 428:9, 436:22, 443:9, 443:13
importantly [3] - 29:24, 31:5, 32:9
impose [4] - 243:8, 243:14, 312:4, 416:10
imposed [8] - 7:23, 15:18, 23:16, 42:12, 45:18, 45:25, 243:16, 326:15
imposing [4] - 27:25, 417:17, 419:23, 420:14
impossible [2] - 55:7, 120:19
impressed [1] - 444:7
impromptu [2] - 190:9, 194:5
improper [5] - 28:2, 137:1, 138:1, 138:19, 159:9
improperly [5] - 222:14, 361:13, 380:20, 381:19, 446:4
IN [1] - 1:3
inaccurate [5] - 123:23, 126:9, 307:25, 404:14, 418:18
inappropriate [3] - 10:16, 223:22, 273:15
inch [1] - 113:23
incident [9] - 23:10, 24:2, 41:15, 44:23, 245:23, 247:4, 255:12, 259:22, 260:13
incidentally [1] - 128:24
incidents [3] - 48:16, 249:18, 253:9
inclement [4] - 55:9, 68:22, 69:17, 70:5
inclined [1] - 226:16
include [22] - 110:17, 110:22, 159:1, 179:19, 198:15, 198:22, 199:8, 201:13, 202:11, 203:21, 210:18, 210:20, 228:15, 228:18, 238:18,

325:25, 425:3, 451:24, 452:6, 452:7, 452:12, 454:24 included [17] - 179:18, 191:17, 198:16, 202:14, 202:20, 202:24, 204:1, 204:19, 207:1, 243:22, 369:20, 369:22, 441:21, 449:8, 454:24, 454:25, 455:16 includes [6] - 32:25, 103:11, 103:14, 103:19, 103:23, 104:14 including [10] - 30:1, 36:6, 42:8, 141:8, 166:6, 313:15, 326:4, 354:7, 357:25, 413:24 inclusion [2] - 438:6, 450:11 inconclusive [1] - 315:21 inconsequential [2] - 115:1, 116:17 inconsistency [3] - 187:6, 219:24, 431:19 inconsistent [3] - 147:16, 221:19, 432:1 incorporate [1] - 211:13 Incorporated [1] - 345:14 incorporated [3] - 213:4, 213:12, 367:11 incorporating [1] - 212:17 incorrect [2] - 202:7, 286:24 incorrectly [1] - 161:18 increase [3] - 291:7, 360:25, 425:15 increasing [2] - 366:4, 394:13 increments [1] - 214:5 incriminating [3] - 14:22, 14:24, 149:19 indeed [1] - 157:8 independence [4] - 262:4, 322:3, 348:13, 348:15 independent [21] - 27:24, 29:9, 30:19,	202:13, 252:23, 261:20, 262:8, 262:12, 264:18, 264:24, 266:11, 266:17, 267:1, 267:3, 270:12, 271:9, 286:7, 322:24, 323:8, 323:10, 348:17 independently [4] - 8:20, 156:3, 285:8, 311:15 index [1] - 98:18 Indianapolis [2] - 229:18, 299:17 indicate [7] - 13:23, 63:13, 96:3, 219:5, 235:20, 392:19, 397:9 indicated [11] - 8:10, 225:23, 226:23, 289:9, 309:16, 370:1, 374:12, 396:10, 403:6, 416:5, 456:14 indicates [2] - 204:12, 315:5 indicating [7] - 53:9, 171:7, 174:18, 184:12, 386:17, 386:22, 451:22 indicating) [7] - 25:17, 161:1, 171:23, 172:1, 175:10, 182:17, 182:19 indication [4] - 260:14, 369:8, 383:22, 435:20 indications [2] - 369:10, 391:17 individual [1] - 362:20 individuals [2] - 156:8, 309:13 industrial [1] - 151:10 industries [4] - 151:18, 152:8, 152:10, 153:14 infant [1] - 153:18 infer [2] - 66:9, 66:15 inference [2] - 38:22, 44:12 inflate [1] - 119:8 inflated [19] - 18:23, 18:25, 35:14, 58:9, 59:9, 113:14, 113:22, 114:8, 116:5, 118:9, 119:9, 119:24, 119:25, 122:9, 177:7, 193:17, 238:21,	254:25, 276:8 inflating [3] - 64:25, 65:4, 135:1 inflation [31] - 35:2, 35:7, 50:16, 50:21, 51:13, 51:15, 66:12, 73:10, 97:22, 100:18, 100:23, 101:3, 101:7, 113:11, 114:12, 114:15, 119:17, 119:19, 119:21, 124:2, 136:3, 143:17, 143:23, 253:2, 254:19, 276:10, 276:14, 277:4, 332:20, 351:9, 360:22 influence [2] - 349:11, 350:4 inform [1] - 256:21 information [34] - 19:13, 38:19, 38:23, 39:9, 43:16, 48:17, 89:9, 90:25, 91:8, 94:19, 155:21, 243:14, 253:24, 253:25, 254:11, 254:16, 254:23, 299:24, 305:17, 315:11, 320:22, 332:16, 333:3, 334:3, 334:19, 337:7, 337:11, 352:21, 357:24, 392:23, 393:3, 408:9, 408:16, 437:6 informed [2] - 86:16, 122:8 initial [8] - 27:25, 144:8, 184:6, 291:15, 347:6, 380:14, 399:13, 413:14 inquire [1] - 164:13 inserted [3] - 160:14, 351:13, 353:14 insertion [2] - 350:7 insertions [2] - 351:9, 351:16 inside [14] - 230:18, 231:16, 234:17, 288:24, 351:1, 351:13, 351:22, 353:14, 354:1, 356:10, 382:5, 393:10, 393:22, 397:23 insight [1] - 183:1 insights [2] - 153:4,	182:12 insignificant [7] - 179:20, 361:16, 430:22, 431:3, 431:15, 446:7, 453:9 insistent [1] - 364:15 inspected [1] - 239:20 instead [4] - 45:25, 176:25, 188:9, 211:20 instinctively [1] - 433:6 Institute [2] - 353:19, 412:22 institution [2] - 154:4, 154:9 instruct [3] - 118:25, 235:14, 235:20 instructed [2] - 23:14, 233:7 instruction [3] - 121:18, 121:21, 231:18 instructions [4] - 96:10, 232:13, 323:17, 348:7 instrument [1] - 353:14 integrity [18] - 22:8, 22:19, 23:25, 25:20, 29:22, 31:15, 31:17, 31:20, 35:25, 40:14, 46:15, 149:14, 154:9, 228:12, 250:18, 272:4, 311:22, 311:25 Integrity [3] - 98:17, 98:24, 99:9 intend [2] - 7:13, 8:1 intending [2] - 209:4, 209:5 intense [1] - 57:15 intensity [1] - 57:19 intensive [1] - 442:2 intention [2] - 360:3, 442:19 interact [1] - 441:23 interactions [2] - 440:25, 442:5 intercepted [2] - 191:8, 320:3 interest [4] - 156:1, 271:20, 344:11, 344:12 interested [2] - 6:13, 7:25 interesting [7] - 24:21, 25:19, 155:20, 212:11, 279:7, 295:18, 360:14	interestingly [3] - 40:1, 191:13, 419:22 interfere [1] - 323:22 interject [1] - 7:1 internal [8] - 356:21, 393:7, 393:9, 394:1, 394:6, 394:7, 394:10, 394:17 internally [1] - 397:18 internet [1] - 379:22 interpret [7] - 24:23, 137:2, 137:3, 275:21, 276:1, 277:1, 277:5 interpretation [1] - 206:18 interpreted [1] - 455:4 interrupt [1] - 224:22 intersection [4] - 403:5, 403:23, 404:2, 405:10 intervention [5] - 34:6, 34:7, 34:11, 34:22, 209:2 interview [42] - 29:15, 40:5, 74:25, 78:10, 108:24, 109:25, 110:5, 110:10, 138:10, 138:11, 138:16, 243:24, 244:6, 244:25, 249:4, 281:19, 281:20, 283:24, 293:12, 304:25, 305:19, 305:25, 309:21, 310:2, 310:10, 312:19, 313:15, 320:14, 320:15, 320:20, 321:1, 321:10, 325:17, 325:22, 335:5, 335:8, 335:9, 335:21, 336:8, 336:16, 340:21, 341:1 interviewed [18] - 29:22, 34:15, 37:24, 74:21, 74:23, 86:2, 89:17, 107:8, 107:11, 243:25, 274:6, 292:1, 307:5, 310:11, 312:16, 325:18, 330:10, 335:7 interviewing [1] - 314:18 interviews [8] - 244:14, 244:15, 267:8, 267:10, 281:19, 288:22,
---	--	---	---	--

307:23, 308:8
intriguing [1] - 189:4
introduce [1] - 421:7
introduced [1] - 455:10
introduction [1] - 438:6
intuition [2] - 189:6, 189:11
invalidate [1] - 286:2
investigate [2] - 258:4, 324:6
investigated [2] - 24:19, 249:9
investigation [67] - 23:13, 23:23, 29:18, 30:19, 30:21, 30:23, 37:1, 37:11, 45:1, 45:5, 87:24, 141:4, 169:17, 200:25, 237:23, 238:5, 247:3, 248:14, 250:8, 252:23, 253:5, 254:10, 255:3, 258:8, 258:11, 262:3, 262:12, 262:16, 262:21, 263:14, 263:18, 264:3, 264:8, 264:10, 266:2, 266:23, 267:1, 267:3, 267:11, 270:12, 272:3, 272:10, 310:22, 311:5, 311:17, 311:21, 311:24, 322:11, 322:12, 322:15, 324:16, 327:7, 327:12, 336:1, 339:4, 339:15, 347:7, 348:18, 349:2, 349:6, 355:1, 367:9, 413:3, 413:13, 415:3, 417:1, 442:3
investigations [4] - 322:6, 322:9, 322:21
investigative [7] - 100:16, 100:22, 109:5, 123:17, 123:18, 264:17, 267:19
investigator [11] - 29:9, 29:20, 261:16, 261:19, 261:20, 262:8, 262:13, 310:3, 322:25, 323:8, 323:20
investigators [4] -

3:15, 8:21, 39:10, 141:18
invite [1] - 80:8
invited [2] - 79:19, 80:3
inviting [1] - 79:23
invoked [2] - 9:8, 22:8
involve [3] - 135:18, 256:14, 267:8
involved [30] - 24:4, 24:5, 35:20, 64:5, 64:10, 64:14, 113:25, 114:3, 136:23, 153:2, 154:22, 195:22, 195:25, 243:2, 247:13, 254:1, 255:14, 256:11, 260:7, 260:14, 260:15, 260:16, 266:2, 316:20, 316:21, 316:23, 322:21, 332:9, 348:5, 407:16
involvement [5] - 32:19, 242:24, 276:3, 326:2, 326:3
involves [5] - 29:18, 153:23, 196:10, 283:25, 417:18
involving [11] - 15:11, 23:10, 24:3, 25:14, 31:17, 44:24, 152:5, 152:13, 196:7, 273:16, 276:14
ironically [1] - 24:6
irony [1] - 120:14
irrespective [1] - 88:18
isolate [1] - 167:19
Israel [1] - 13:21
issuance [1] - 252:18
issue [46] - 12:15, 13:5, 13:16, 14:9, 15:9, 18:17, 22:4, 23:8, 27:15, 27:21, 28:2, 29:16, 44:14, 45:18, 45:19, 48:15, 50:16, 86:22, 97:13, 159:10, 169:17, 171:18, 178:24, 182:24, 210:8, 220:20, 229:11, 271:5, 279:3, 291:11, 292:12, 292:13, 311:15, 312:9, 327:23, 328:24, 330:17, 341:10, 342:3, 342:19, 342:23,

344:1, 366:16, 398:4, 456:12
issued [11] - 8:16, 263:23, 264:21, 265:18, 268:1, 272:25, 302:6, 302:14, 330:13, 330:18, 376:21
issues [15] - 6:17, 27:13, 29:2, 31:16, 145:4, 145:10, 216:10, 242:10, 261:16, 262:9, 332:22, 334:14, 334:15, 340:9, 456:15
Item [1] - 357:17
itself [13] - 32:24, 37:14, 149:8, 221:3, 247:11, 266:3, 267:11, 288:7, 301:6, 357:11, 357:14, 358:8, 435:22
IX [4] - 300:22, 326:22, 326:23, 327:5

J

jackson [1] - 191:8
James [1] - 192:12
January [30] - 103:12, 103:25, 121:2, 125:1, 125:4, 125:11, 125:15, 126:1, 126:18, 127:3, 129:16, 130:4, 131:9, 131:11, 132:1, 132:7, 132:10, 133:23, 141:9, 141:10, 143:15, 144:22, 145:13, 261:23, 263:11, 264:12, 264:22, 306:24, 313:2
Jastremski [114] - 12:20, 12:23, 12:24, 34:25, 37:21, 43:25, 44:5, 49:17, 50:22, 51:18, 53:21, 57:20, 58:3, 58:8, 60:7, 60:19, 60:21, 61:10, 62:12, 63:3, 67:19, 67:23, 68:8, 70:2, 71:15, 75:4, 75:11, 76:5, 76:9, 77:20, 78:8, 78:18, 79:20, 81:1, 92:4, 92:8, 92:12, 92:15, 92:18,

93:1, 93:14, 95:3, 95:14, 95:19, 96:4, 97:3, 111:2, 111:9, 111:19, 112:2, 114:18, 123:19, 124:8, 125:3, 125:12, 125:16, 125:25, 126:4, 126:12, 126:19, 127:5, 127:9, 127:15, 128:10, 129:12, 129:14, 129:18, 129:22, 130:5, 130:9, 130:21, 130:25, 131:3, 131:9, 131:19, 131:24, 132:2, 132:8, 132:10, 132:18, 132:22, 133:24, 134:3, 135:1, 139:11, 140:10, 140:13, 140:15, 141:8, 141:24, 143:15, 143:22, 144:20, 144:21, 145:14, 145:18, 259:9, 273:16, 274:3, 274:5, 275:18, 275:23, 278:11, 293:6, 299:15, 306:6, 310:20, 314:25, 316:24, 325:24, 326:2, 333:1, 337:19, 456:11
Jastremski's [5] - 38:8, 62:17, 128:24, 299:18, 306:15
Jeff [9] - 88:7, 252:22, 261:20, 262:3, 262:19, 263:15, 267:6, 267:7, 310:2
JEFFREY [2] - 2:5, 3:11
Jeffrey [6] - 7:18, 28:22, 37:4, 112:18, 227:15, 342:17
jerry [1] - 373:15
Jersey [1] - 84:13
jerseys [2] - 83:5, 83:10
jet [2] - 115:16, 117:17
Jet [13] - 55:8, 56:24, 115:4, 116:14, 117:18, 117:22, 118:1, 118:6, 118:18, 119:2, 119:15, 121:16, 121:19

jets [42] - 12:13, 12:14, 24:3, 24:4, 24:6, 52:5, 52:13, 54:16, 56:1, 56:2, 56:4, 58:2, 58:7, 59:14, 61:13, 62:10, 62:14, 62:19, 63:14, 63:23, 68:20, 69:2, 70:4, 70:11, 72:18, 92:9, 93:17, 93:23, 93:24, 94:2, 94:5, 94:6, 113:18, 114:13, 114:21, 116:10, 250:3, 276:4, 276:7, 276:11, 277:3
Jets [1] - 278:8
jets' [1] - 52:8
Jim [5] - 81:24, 123:2, 134:25, 135:7, 316:21
Jimmy [1] - 155:15
JJ [6] - 258:22, 258:24, 259:5, 299:11, 299:14, 300:5
JJ's [2] - 299:17, 300:10
job [11] - 134:22, 276:16, 283:5, 283:15, 283:25, 284:5, 303:5, 323:1, 323:8, 324:6, 324:9
John [65] - 49:14, 49:16, 50:2, 52:20, 53:21, 55:3, 57:7, 61:2, 61:4, 67:18, 69:11, 69:24, 70:1, 70:2, 70:20, 71:23, 71:24, 75:3, 80:11, 92:18, 92:20, 94:16, 94:18, 94:23, 95:4, 97:14, 98:20, 111:2, 112:2, 114:18, 115:24, 117:4, 117:21, 119:3, 120:3, 122:17, 124:8, 125:12, 125:16, 125:25, 126:12, 127:5, 129:17, 130:4, 130:8, 131:19, 132:2, 132:10, 132:21, 132:25, 133:6, 133:24, 134:16, 134:25, 137:3, 137:4, 137:21, 143:15, 144:20, 144:21, 145:14, 145:18,

347:13
jointly [1] - 262:7
joke [1] - 121:5
JONATHAN [1] - 3:12
Jones [1] - 36:6
Jonny [2] - 78:19, 78:25
JOSHUA [3] - 1:23, 457:7, 457:12
JR [1] - 4:10
Jr [4] - 47:13, 102:6, 261:11, 263:12
judge [6] - 284:2, 303:5, 303:10, 317:21, 324:3, 324:4
Judge [4] - 21:18, 36:6, 45:24, 46:5
judgment [20] - 14:3, 29:1, 29:10, 31:7, 31:8, 31:24, 32:3, 32:8, 38:13, 40:19, 40:20, 40:24, 42:4, 42:5, 296:8, 309:14, 317:8, 317:19, 324:14
judgments [1] - 194:11
jump [1] - 169:22
juncture [1] - 281:18
June [5] - 1:10, 6:2, 105:12, 139:8, 337:5
juries [1] - 317:12
jurisdiction [1] - 228:20
jurors [2] - 317:19, 329:24
jury [3] - 317:14, 324:8, 325:4
Justice's [1] - 152:4

K

K-balls [1] - 24:11
kala [1] - 373:15
kala-jerry [1] - 373:15
Karp [2] - 324:12, 329:22
keep [20] - 148:11, 154:8, 165:22, 165:23, 232:22, 260:21, 303:20, 318:25, 383:14, 384:14, 384:15, 384:16, 385:6, 385:10, 407:1, 407:5, 416:25, 427:16, 432:2, 437:24
keeping [4] - 226:8, 226:15, 340:10,

340:11
keeps [3] - 179:5, 232:23, 232:24
Kensil [1] - 229:20
kept [4] - 42:17, 236:15, 320:15, 339:7
KESSLER [110] - 3:11, 5:4, 5:8, 7:10, 7:14, 7:16, 7:19, 42:14, 47:3, 47:10, 48:10, 52:6, 52:25, 62:8, 65:20, 65:22, 66:4, 66:23, 89:8, 91:19, 97:14, 97:16, 98:5, 98:20, 99:16, 111:20, 112:10, 112:15, 112:19, 124:20, 135:25, 136:7, 136:11, 139:2, 139:5, 139:7, 143:8, 145:22, 148:5, 148:8, 148:11, 148:20, 148:23, 149:5, 150:3, 194:15, 225:22, 226:7, 226:20, 227:9, 227:17, 227:25, 233:15, 242:13, 242:19, 247:16, 247:21, 249:16, 251:5, 255:8, 255:10, 256:25, 257:2, 259:13, 260:18, 260:21, 260:25, 261:8, 266:9, 266:20, 271:7, 277:16, 279:1, 294:17, 298:8, 318:4, 321:18, 340:18, 340:20, 342:15, 342:18, 342:23, 343:3, 343:15, 343:21, 343:24, 344:19, 344:23, 373:10, 386:1, 392:16, 395:16, 400:19, 400:22, 401:4, 402:8, 408:2, 408:5, 411:13, 427:16, 427:19, 437:23, 439:10, 448:13, 453:25, 454:17, 455:24, 456:3, 456:13, 457:2
Kessler [37] - 29:7, 30:4, 32:6, 32:10, 32:14, 34:1, 34:8,

36:5, 40:7, 40:16, 41:20, 65:18, 100:10, 110:12, 124:6, 127:2, 144:15, 233:13, 252:24, 259:19, 284:7, 287:4, 288:5, 318:2, 323:4, 331:11, 334:5, 336:19, 339:19, 340:4, 340:13, 400:16, 402:25, 404:11, 406:1, 406:14, 454:16
Kevin [1] - 152:17
KEVIN [1] - 2:16
key [25] - 158:13, 158:18, 158:20, 168:13, 169:19, 184:10, 186:22, 200:7, 210:21, 347:22, 354:5, 354:9, 359:12, 359:16, 361:5, 361:10, 361:11, 363:14, 363:19, 414:13, 414:16, 445:13, 445:16, 446:3, 446:24
kick [1] - 24:11
kicker [3] - 24:19, 250:8, 335:7
kicking [1] - 250:4
kickoff [1] - 24:11
kind [37] - 10:16, 11:13, 54:10, 57:22, 69:3, 69:9, 69:10, 75:15, 80:2, 80:4, 82:10, 108:10, 135:17, 135:20, 163:20, 177:24, 179:3, 194:9, 217:7, 245:19, 245:20, 247:22, 269:11, 269:12, 283:7, 287:16, 288:7, 291:2, 295:18, 313:6, 324:17, 345:20, 346:3, 352:5, 360:16, 405:3, 446:10
kinds [3] - 36:8, 68:10, 346:7
knee [1] - 313:3
knock [2] - 203:17, 229:17
KNOPP [1] - 2:23
knowing [4] - 55:3, 68:18, 79:15, 296:5
knowledge [50] -

11:15, 23:4, 38:8, 40:11, 56:10, 56:12, 58:17, 58:20, 95:13, 99:13, 113:10, 127:15, 191:21, 195:4, 229:14, 229:22, 232:16, 232:20, 233:25, 235:4, 235:9, 235:10, 235:17, 235:19, 237:10, 243:4, 250:22, 250:25, 251:1, 255:2, 255:17, 259:10, 268:21, 272:8, 272:13, 272:16, 272:22, 274:9, 274:22, 276:3, 291:12, 306:7, 309:24, 310:5, 310:8, 311:4, 326:5, 330:5, 341:24, 342:2
known [11] - 18:10, 39:22, 48:11, 75:13, 114:11, 142:16, 156:7, 206:5, 261:21, 378:10, 435:2
knows [10] - 13:3, 14:4, 35:8, 36:1, 44:15, 94:22, 95:7, 95:25, 144:25
Kraft [12] - 13:19, 13:22, 14:5, 14:7, 149:7, 149:10, 149:13, 225:25, 226:2, 237:19, 252:13
Kuiper [1] - 152:4

L

lab [1] - 282:21
Labor [2] - 2:7, 2:17
laces [1] - 56:22
lack [4] - 15:15, 44:16, 44:20, 223:24
laid [1] - 445:3
language [3] - 135:17, 172:4, 205:9
Large [2] - 441:1, 441:2
large [8] - 39:18, 152:10, 191:1, 349:5, 393:12, 436:16, 443:1, 449:16
larger [3] - 404:12, 418:4, 420:12

last [37] - 23:10, 27:14, 39:1, 49:18, 54:25, 76:19, 92:16, 93:5, 93:18, 94:14, 97:12, 109:11, 127:13, 129:6, 129:8, 157:25, 158:1, 159:10, 168:15, 176:18, 194:1, 200:15, 224:19, 224:25, 251:18, 261:17, 264:16, 327:4, 330:20, 356:14, 357:17, 409:16, 418:13, 421:3, 421:20, 431:5, 439:13
last-minute [1] - 39:1
lasted [1] - 130:5
lasting [2] - 131:1, 131:2
lasts [1] - 170:8
late [3] - 54:24, 395:17, 428:12
latter [2] - 220:12, 220:13
Law [7] - 18:9, 184:2, 220:10, 231:9, 372:4, 394:1, 394:6
law [44] - 16:16, 18:3, 19:24, 21:20, 33:22, 46:5, 184:19, 188:16, 189:14, 189:15, 219:16, 219:21, 219:23, 220:4, 220:14, 220:21, 220:22, 221:2, 221:11, 231:5, 237:13, 252:25, 261:13, 263:12, 280:5, 280:7, 284:19, 288:1, 288:6, 288:8, 288:13, 290:23, 314:20, 364:19, 365:12, 365:17, 365:23, 365:24, 366:2, 371:25, 375:21, 426:6
lawyer [14] - 15:13, 27:2, 37:6, 241:17, 241:19, 266:22, 269:9, 269:10, 297:19, 300:9, 305:3, 305:7, 305:15, 313:14
lawyer's [1] - 305:8
lawyers [10] - 14:18, 14:19, 15:8, 84:22,

85:7, 110:17,
195:22, 195:24,
270:11, 305:12
layers [1] - 22:2
LCD [2] - 153:19,
196:7
lead [9] - 6:25, 182:13,
183:5, 261:16,
261:19, 283:2,
310:3, 413:3, 451:23
Lead [1] - 3:15
leading [2] - 15:24,
103:20
leads [3] - 194:7,
208:6, 392:24
LEAGUE [6] - 1:1, 2:3,
2:15, 2:20, 3:3, 3:9
League [27] - 1:14,
9:18, 11:13, 13:1,
18:2, 21:3, 23:13,
25:17, 25:22, 28:6,
28:7, 36:9, 46:6,
64:13, 65:22,
113:20, 190:17,
228:7, 236:5, 236:8,
249:24, 251:25,
257:21, 314:11,
364:9, 376:2, 377:4
League's [1] - 46:9
leak [2] - 350:8,
351:17
leakage [1] - 351:22
leaked [1] - 281:22
leaking [1] - 351:14
leaks [3] - 282:25,
283:13, 283:14
learn [14] - 18:1, 65:8,
74:12, 114:14,
229:11, 272:17,
287:24, 288:17,
288:23, 289:2,
289:8, 290:11,
290:14, 437:20
learned [9] - 58:3,
58:8, 63:21, 82:19,
84:21, 114:20,
117:11, 288:21,
288:22
learning [2] - 224:15,
225:9
least [22] - 14:4,
21:19, 28:9, 73:17,
114:6, 196:14,
199:2, 226:17,
227:1, 227:5,
240:19, 240:21,
242:1, 243:1,
248:19, 256:15,
273:14, 280:21,
344:9, 400:25,

418:11, 421:21
leather [11] - 12:9,
53:3, 53:6, 53:8,
53:17, 55:2, 56:20,
56:22, 57:1, 57:2,
57:3
leave [6] - 72:2,
168:25, 213:15,
381:21, 452:1,
456:22
leaves [1] - 190:9
led [2] - 47:25, 161:1
left [13] - 153:7,
160:24, 173:20,
198:17, 202:15,
229:20, 230:11,
309:11, 348:20,
401:9, 401:14,
401:19, 403:22
left-hand [2] - 160:24,
403:22
legal [9] - 21:7, 21:10,
28:10, 46:20,
277:24, 278:4,
420:22, 424:25,
456:14
legally [1] - 46:18
lend [1] - 181:9
length [1] - 212:4
less [16] - 64:1, 68:3,
119:25, 126:4,
132:19, 182:20,
183:5, 391:19,
405:23, 410:7,
410:11, 420:25,
435:24, 436:6,
437:9, 442:1
letter [32] - 6:15,
14:14, 27:23, 39:3,
105:11, 105:17,
106:10, 108:21,
111:5, 111:7,
111:17, 114:22,
139:8, 237:18,
238:20, 240:23,
240:25, 242:3,
242:4, 242:6,
244:20, 250:13,
250:14, 252:13,
252:19, 252:20,
330:14, 332:14,
337:5, 337:7
letters [1] - 430:10
level [52] - 34:4, 35:7,
50:16, 50:21, 51:13,
51:15, 63:20, 66:12,
67:24, 68:6, 113:11,
114:8, 114:12,
114:15, 115:13,
116:5, 116:11,

118:5, 118:8,
119:17, 119:19,
119:21, 124:2,
151:23, 151:24,
153:1, 165:2, 171:6,
171:7, 171:23,
179:23, 193:14,
217:2, 217:10,
217:13, 348:12,
348:15, 382:21,
382:22, 413:18,
420:7, 420:17,
420:18, 432:12,
432:17, 432:24,
433:2, 434:14,
444:8, 446:17,
451:4, 455:9
levels [10] - 58:17,
143:17, 143:24,
145:19, 204:22,
215:14, 324:24,
324:25, 356:19,
426:23
LEVY [41] - 2:12, 7:4,
7:12, 7:15, 47:1,
62:7, 100:2, 112:18,
148:15, 149:4,
150:1, 203:17,
226:14, 227:5,
227:15, 242:18,
260:19, 268:13,
271:6, 271:24,
279:4, 294:16,
295:11, 318:2,
321:22, 340:15,
342:17, 343:14,
343:20, 343:23,
344:16, 344:25,
380:3, 385:25,
395:24, 411:16,
449:13, 456:2,
456:4, 456:21, 457:3
Levy [2] - 6:16, 6:22
levy [5] - 11:2, 21:6,
46:20, 99:18, 225:23
Lexol [13] - 55:2, 55:5,
55:15, 68:25, 69:8,
69:9, 69:12, 69:25,
70:3, 70:16, 76:17,
76:21
liability [1] - 325:9
liable [1] - 9:17
lie [1] - 278:7
lied [1] - 278:9
life [3] - 14:6, 43:11,
377:25
light [3] - 45:16,
342:19, 343:5
lighter [2] - 294:23,
405:4

lightning [3] - 295:7,
296:16, 297:3
likelihood [11] -
188:12, 207:23,
208:15, 209:1,
209:6, 209:7,
209:11, 209:22,
222:8, 222:10, 421:6
likely [20] - 66:10,
167:21, 206:2,
236:22, 260:7,
327:8, 357:23,
363:7, 389:15,
392:25, 393:4,
403:11, 406:6,
406:10, 408:10,
409:9, 420:24,
420:25, 424:25,
455:8
limit [10] - 11:13, 13:1,
248:7, 248:18,
249:2, 277:24,
278:4, 278:17,
395:19, 456:15
limitation [1] - 20:10
limitations [2] - 20:7,
28:15
limited [4] - 386:12,
424:24, 435:5,
435:23
limits [1] - 63:21
line [11] - 158:16,
174:24, 183:11,
190:8, 190:25,
194:2, 271:3,
335:12, 405:3,
405:20, 420:21
linear [3] - 371:10,
419:3, 423:9
lineman [1] - 282:12
liner [1] - 371:6
lines [3] - 109:18,
190:17, 443:5
linked [1] - 156:2
list [2] - 104:16,
210:19
listed [4] - 99:3,
351:23, 356:9, 358:4
listen [5] - 31:6, 42:5,
42:6, 274:14, 339:6
listening [4] - 31:24,
38:14, 283:18,
283:19
listing [1] - 239:9
literally [1] - 54:8
litigation [8] - 153:5,
153:9, 153:11,
195:22, 195:25,
196:7, 196:9, 346:6
live [1] - 284:7

lives [1] - 43:11
living [1] - 43:11
LLP [6] - 2:10, 2:19,
3:8, 3:15, 3:20, 4:3
lobby [1] - 64:6
lobbying [1] - 66:13
located [1] - 345:25
locker [47] - 23:1,
34:14, 82:3, 83:12,
83:18, 84:4, 88:14,
121:25, 122:5,
123:20, 170:7,
170:13, 171:12,
171:16, 171:22,
172:11, 172:14,
172:24, 172:25,
184:9, 189:16,
220:18, 251:18,
276:13, 276:21,
290:18, 290:25,
292:14, 292:18,
307:10, 307:19,
308:10, 314:22,
352:24, 358:2,
383:21, 387:17,
388:13, 389:4,
390:5, 390:25,
391:2, 394:7, 406:8,
408:11, 409:10,
409:21
log [3] - 89:9, 90:19,
338:6
logic [3] - 201:6,
303:23, 418:19
logo [171] - 17:10,
17:11, 159:12,
161:24, 161:25,
162:2, 183:17,
184:21, 184:22,
185:1, 185:2, 185:7,
186:6, 186:7, 186:9,
186:12, 186:13,
186:19, 186:24,
187:2, 188:1,
188:13, 215:20,
216:18, 216:19,
216:20, 217:7,
217:8, 218:10,
221:10, 221:17,
221:21, 221:22,
232:10, 232:11,
232:14, 232:15,
241:7, 291:16,
291:17, 291:22,
292:5, 293:1, 294:8,
295:1, 295:5, 295:9,
296:4, 296:11,
296:13, 296:14,
296:21, 297:16,
297:24, 301:7,

301:13, 301:21,
301:25, 302:22,
302:24, 303:1,
303:6, 303:13,
316:1, 316:8, 316:9,
323:25, 355:4,
355:5, 355:11,
355:17, 363:21,
364:4, 364:5, 364:6,
364:13, 364:17,
365:13, 365:17,
366:15, 366:17,
366:22, 366:23,
366:24, 367:3,
367:7, 368:18,
368:19, 368:25,
369:1, 369:4, 369:5,
372:14, 372:18,
372:21, 375:1,
375:5, 375:6,
375:17, 376:6,
376:22, 377:1,
377:13, 377:19,
377:20, 377:21,
377:24, 377:25,
378:4, 378:7,
378:12, 378:23,
379:4, 379:11,
392:1, 392:2, 392:3,
392:5, 392:10,
392:16, 403:1,
403:2, 403:12,
403:17, 404:6,
404:7, 404:9,
404:11, 404:25,
405:2, 405:12,
405:15, 405:19,
408:7, 408:8,
408:20, 410:4,
414:3, 414:4, 419:6,
421:18, 421:19,
424:11, 424:13,
424:22, 426:1,
426:17, 426:20,
446:25, 447:7,
447:9, 447:12,
447:14
logs [2] - 43:20,
149:23
long-time [1] - 155:12
long-winded [1] -
284:16
loo [1] - 258:19
look [152] - 6:14, 8:21,
11:17, 15:6, 15:10,
20:5, 20:6, 20:20,
29:15, 33:18, 39:16,
46:22, 62:2, 62:4,
71:4, 78:3, 78:5,
86:17, 91:18, 91:24,

93:17, 94:8, 98:8,
98:10, 98:18, 99:4,
105:16, 111:5,
127:1, 145:4, 145:9,
160:12, 161:10,
162:12, 162:13,
164:14, 166:3,
172:2, 173:9,
173:11, 173:18,
181:3, 186:18,
188:10, 193:8,
198:16, 201:2,
201:15, 203:11,
212:14, 224:18,
224:19, 230:12,
238:19, 239:3,
239:9, 239:24,
239:25, 240:4,
242:21, 245:13,
245:22, 248:2,
249:15, 252:11,
253:5, 258:16,
258:17, 262:25,
273:6, 277:7, 283:4,
284:5, 286:20,
287:16, 298:12,
300:4, 300:19,
300:21, 303:16,
311:14, 315:16,
315:24, 323:10,
324:6, 326:1, 330:5,
331:17, 332:17,
337:4, 337:24,
338:10, 339:23,
340:2, 349:18,
349:25, 353:13,
353:24, 355:3,
360:1, 361:24,
364:12, 365:13,
365:14, 366:22,
368:23, 379:7,
379:18, 381:24,
383:19, 383:25,
392:7, 392:22,
393:1, 393:2, 394:1,
394:25, 403:16,
404:21, 404:22,
405:2, 405:3,
405:16, 406:22,
415:10, 415:22,
417:1, 421:6,
421:17, 421:23,
425:1, 428:14,
438:21, 438:23,
439:7, 441:17,
442:12, 443:12,
446:18, 450:13,
450:14, 451:5,
451:6, 451:9,
452:25, 453:5,
453:13, 454:10,

454:11, 454:14
look-see [1] - 287:16
looked [55] - 15:20,
23:8, 25:22, 61:8,
115:11, 159:3,
200:9, 240:16,
245:6, 245:16,
249:19, 287:7,
296:13, 306:21,
312:5, 312:7,
316:19, 317:11,
328:6, 328:22,
329:23, 354:15,
357:7, 360:8,
362:17, 362:18,
365:1, 365:2, 365:6,
367:3, 368:5, 368:6,
369:6, 370:10,
370:12, 376:15,
379:17, 379:19,
382:1, 388:6, 396:4,
413:19, 415:16,
417:2, 418:19,
421:10, 434:23,
438:22, 439:5,
441:13, 444:18,
446:19, 446:21
looking [42] - 62:1,
67:3, 163:2, 208:1,
222:13, 223:14,
241:3, 247:11,
253:16, 258:18,
275:13, 281:4,
287:6, 287:13,
287:17, 321:8,
338:6, 338:8,
338:25, 346:14,
349:23, 360:6,
362:19, 363:5,
363:11, 379:21,
380:5, 410:2,
410:12, 415:6,
417:19, 419:5,
423:21, 425:10,
426:24, 427:2,
434:22, 439:6,
442:20, 443:6,
444:20, 452:11
looks [5] - 175:9,
287:8, 364:16,
410:9, 417:24
loosely [2] - 120:13,
120:17
LORIN [1] - 3:17
Lorin [2] - 119:20,
270:4
Los [1] - 4:4
lose [2] - 74:2, 234:15
loss [1] - 351:6
lost [1] - 224:7

love [1] - 294:23
low [5] - 116:5, 118:9,
197:20, 239:11,
239:15
low-tech [1] - 197:20
lower [18] - 16:20,
16:21, 16:22, 18:18,
35:14, 96:12,
115:22, 127:4,
130:19, 132:6,
171:25, 172:12,
278:3, 364:20,
382:20, 426:14,
446:22
luminaries [1] -
152:21
lunch [1] - 148:8

M

machine [2] - 304:24,
351:5
MacKinnon [11] -
330:14, 365:20,
371:21, 372:7,
372:24, 373:2,
373:3, 422:11,
426:6, 427:11, 448:3
MacKinnon's [1] -
330:4
magnitude [7] -
199:23, 200:19,
327:19, 354:22,
357:6, 435:12,
438:13
mail [28] - 14:10,
39:12, 52:8, 90:20,
109:7, 109:17,
144:20, 149:18,
277:7, 277:8, 277:9,
277:17, 280:13,
281:11, 305:23,
306:1, 332:5, 333:9,
333:15, 333:16,
333:20, 333:22,
334:23, 335:18,
337:10, 338:7
mailed [1] - 281:2
mails [36] - 14:15,
14:23, 14:24, 15:11,
39:8, 43:5, 61:20,
61:25, 62:12, 78:4,
84:23, 85:14, 85:15,
85:25, 86:9, 91:11,
91:17, 91:18, 92:2,
144:16, 305:21,
305:24, 310:13,
310:15, 310:21,
311:3, 311:14,
313:7, 329:9,

332:18, 335:24,
339:12, 339:18,
339:23, 340:2,
341:11
main [10] - 8:9, 128:9,
141:20, 205:1,
205:22, 206:20,
418:7, 419:4, 426:2,
442:2
Maine [1] - 188:24
maintain [1] - 407:13
maintained [2] -
297:23, 297:25
major [4] - 153:9,
157:16, 157:21,
219:10
maker [1] - 433:23
malfunction [1] -
355:15
man [1] - 284:25
manage [1] - 154:23
management [1] -
150:19
Management [2] -
15:24, 150:18
MANAGEMENT [4] -
2:15, 2:20, 4:13,
5:20
Manager [2] - 155:13,
229:18
manager [3] - 59:7,
60:16, 69:4
managers [4] - 22:11,
53:24, 99:7, 147:6
MANARA [1] - 2:16
manifest [1] - 435:22
manner [4] - 31:1,
39:24, 250:11,
251:21
Manning [1] - 66:3
Manual [2] - 98:13,
250:20
manual [5] - 69:7,
250:21, 250:23,
250:24, 251:3
manually [1] - 54:7
manufacturer [1] -
426:17
map [1] - 355:21
March [22] - 40:4,
102:14, 102:20,
103:2, 103:8,
103:11, 104:1,
104:16, 107:2,
107:5, 107:7,
107:10, 108:24,
109:25, 110:10,
112:22, 138:12,
333:17, 335:18,
335:19, 336:8,

336:16
margin [2] - 436:20, 436:21
margins [1] - 165:20
marked [1] - 359:1
MARLOW [2] - 4:14, 5:24
Marlow [30] - 33:23, 227:17, 281:17, 281:20, 282:17, 282:20, 283:5, 283:15, 285:4, 285:20, 286:20, 286:25, 287:18, 287:22, 287:25, 329:12, 330:12, 330:22, 331:4, 342:9, 342:12, 342:13, 342:25, 343:10, 343:19, 433:7, 439:11, 439:23, 440:17, 454:22
Marlow's [2] - 286:10, 347:23
Maryman [8] - 39:2, 43:6, 101:23, 102:1, 106:23, 149:17, 225:25, 226:3
masked [1] - 361:3
masking [1] - 360:23
master [35] - 184:25, 185:1, 185:7, 185:10, 185:13, 185:23, 185:25, 186:1, 186:8, 187:7, 187:11, 216:2, 218:15, 219:24, 221:19, 302:3, 353:17, 372:16, 372:17, 372:19, 374:14, 374:16, 374:20, 374:21, 374:24, 375:2, 375:5, 375:9, 375:10, 375:15, 375:16, 377:15, 377:18, 426:21
Master's [5] - 152:23, 153:1, 156:15, 346:22, 412:10
Master's-level [1] - 153:1
match [7] - 43:24, 44:5, 44:6, 329:18, 423:13, 431:22, 431:24
Material [1] - 346:23
material [7] - 44:3, 332:23, 335:24,

336:3, 346:17, 347:19, 356:20
materials [6] - 110:12, 110:16, 110:20, 332:7, 346:11, 351:21
math [9] - 184:18, 184:19, 188:23, 219:18, 219:19, 219:20, 219:22, 220:9, 220:11
Mathematical [1] - 412:22
mathematical [3] - 185:11, 288:11, 364:20
MATTER [1] - 1:3
matter [33] - 10:25, 17:21, 28:20, 31:18, 40:12, 45:8, 46:19, 51:22, 86:18, 149:14, 155:2, 155:4, 181:14, 182:4, 234:12, 243:9, 258:4, 266:16, 266:21, 279:23, 312:24, 321:3, 323:14, 325:19, 332:25, 344:2, 347:1, 365:14, 413:1, 433:17, 433:18, 456:12
matters [8] - 18:22, 18:25, 46:18, 46:24, 201:9, 201:19, 334:15, 440:25
McNally [56] - 34:13, 34:17, 34:19, 34:25, 44:1, 44:3, 81:22, 81:25, 82:19, 83:2, 83:5, 84:14, 84:16, 92:7, 93:6, 95:14, 96:4, 123:19, 124:1, 129:12, 130:20, 130:24, 131:6, 134:25, 135:7, 137:19, 139:19, 139:20, 139:22, 140:2, 140:7, 273:15, 274:3, 274:5, 275:17, 275:24, 275:25, 276:13, 276:14, 276:19, 276:22, 276:25, 306:6, 307:13, 307:20, 308:4, 308:8, 308:16, 310:20, 316:21, 316:25,

325:24, 326:3, 333:1, 337:20, 456:11
McNally's [5] - 38:9, 44:4, 92:6, 123:2, 276:16
McPhee [3] - 3:5, 311:17, 312:11
mean [60] - 15:5, 54:8, 57:21, 61:3, 61:25, 75:12, 78:17, 87:23, 91:6, 96:19, 128:8, 140:3, 145:5, 157:11, 164:5, 164:6, 178:1, 178:3, 183:3, 185:4, 186:21, 190:24, 192:8, 192:15, 200:4, 201:7, 240:17, 256:11, 266:16, 267:2, 275:22, 276:1, 277:1, 291:21, 296:16, 314:7, 315:14, 324:18, 326:1, 338:3, 360:14, 362:2, 380:21, 389:17, 390:7, 396:7, 400:20, 401:21, 404:3, 422:22, 423:20, 432:19, 434:22, 436:11, 440:22, 445:6, 447:12, 451:16, 454:7, 454:9
meaning [1] - 262:14
meaningful [1] - 415:9
means [22] - 16:17, 18:18, 216:17, 218:9, 220:3, 222:7, 224:3, 325:5, 352:7, 361:23, 364:16, 389:8, 389:12, 389:17, 389:18, 389:20, 389:21, 390:7, 390:23, 393:12, 408:22, 410:18
meant [6] - 115:8, 238:10, 260:7, 324:4, 396:17, 407:7
measure [28] - 159:12, 184:10, 189:7, 214:2, 214:6, 214:10, 215:20, 220:16, 241:5, 292:16, 292:17, 318:18, 328:13, 363:21, 393:14,

393:17, 394:2, 394:6, 394:7, 399:5, 406:2, 411:2, 427:1, 427:5, 428:4, 432:10, 433:15, 447:1
measured [84] - 62:23, 160:1, 160:2, 160:4, 160:9, 160:10, 161:3, 161:4, 168:4, 168:5, 168:21, 168:22, 172:9, 172:11, 172:13, 174:8, 174:20, 174:25, 175:2, 176:14, 182:16, 182:18, 189:8, 189:16, 191:9, 191:11, 191:13, 192:21, 192:22, 200:21, 214:4, 221:5, 222:24, 238:11, 254:14, 254:21, 290:24, 293:24, 314:21, 318:15, 318:19, 318:21, 327:21, 349:12, 351:21, 353:2, 353:18, 353:20, 354:24, 356:23, 360:10, 362:10, 363:12, 365:3, 369:4, 370:2, 370:3, 382:2, 388:11, 388:18, 388:20, 389:2, 389:13, 389:22, 390:3, 390:22, 393:6, 397:20, 415:23, 415:24, 416:2, 416:8, 417:21, 417:23, 418:1, 418:4, 418:9, 421:21, 422:5, 449:24, 449:25
measurement [41] - 161:17, 164:22, 175:4, 176:2, 176:22, 176:23, 180:10, 184:13, 187:2, 191:25, 192:6, 205:24, 206:22, 212:10, 213:19, 213:25, 216:9, 251:16, 366:1, 366:7, 375:8, 383:12, 387:15, 396:21, 397:10, 398:20, 404:20, 405:22, 411:1, 416:3, 418:12,

418:13, 421:18, 426:9, 426:11, 427:7, 428:6, 434:25, 437:21, 447:20
measurements [97] - 159:4, 160:7, 161:9, 161:24, 169:20, 174:23, 181:4, 181:9, 184:1, 185:9, 186:20, 187:12, 189:18, 190:12, 190:14, 191:23, 192:4, 193:11, 193:12, 193:13, 193:18, 199:23, 204:22, 205:3, 206:4, 206:9, 207:11, 211:15, 212:20, 213:1, 213:7, 216:3, 221:13, 222:16, 222:23, 224:5, 224:6, 224:11, 225:2, 239:25, 240:1, 240:5, 251:23, 252:6, 290:13, 292:22, 295:3, 318:7, 328:20, 349:19, 358:5, 358:7, 361:14, 361:24, 364:6, 368:24, 368:25, 369:10, 372:5, 372:17, 375:14, 376:24, 391:19, 391:24, 394:17, 394:20, 394:24, 397:1, 397:3, 397:15, 403:21, 405:18, 408:10, 408:17, 409:14, 409:15, 415:18, 415:20, 417:5, 418:10, 421:24, 423:22, 423:23, 423:24, 424:8, 426:23, 426:25, 437:13, 438:20, 438:24, 438:25, 441:17, 443:7, 446:6, 449:22, 450:14, 454:12
measures [3] - 186:13, 217:21, 239:16
measuring [8] - 189:9, 355:7, 386:15, 390:24, 393:9, 397:17, 416:6, 450:3

mechanical [4] - 346:11, 346:17, 346:22, 351:4	100:23, 101:3, 101:7, 101:11, 101:16, 103:7, 104:3, 104:17, 107:17, 109:1, 109:5, 109:15, 110:2, 110:7, 110:8, 110:18, 110:22, 111:3, 112:1, 112:9, 112:13, 112:23, 112:24, 113:4, 113:5, 125:6, 126:19, 126:23, 127:4, 129:17, 130:3, 132:8, 132:9, 134:24, 135:4, 135:12, 135:15, 135:18, 136:3, 136:17, 137:23, 138:4, 138:6, 138:9, 138:13, 138:16, 139:12, 139:15, 139:20, 140:11, 140:19, 141:5, 141:7, 144:17, 310:14, 310:16, 310:21, 311:4, 311:14, 313:7, 317:2, 317:7, 332:18, 335:24, 337:19, 337:23	Mike [3] - 229:20, 230:11, 230:18	389:3, 389:14, 389:17, 389:23, 390:4, 390:13, 390:16, 390:17, 391:20, 395:22, 399:2, 399:14, 400:15, 405:23, 406:11, 406:12, 408:11, 408:18, 409:9, 410:1, 418:11, 421:21	213:13, 328:19, 328:21, 328:22, 329:1, 360:13, 414:4, 419:4, 423:7, 423:8, 423:9, 424:3, 425:1, 425:5, 425:10, 425:12, 428:15, 428:17, 428:19, 428:22, 428:24, 429:5, 429:6, 429:10, 429:13, 429:19, 430:6, 442:15, 443:22, 449:8, 450:4, 450:8, 450:12
Mechanical [1] - 347:14		millimeter [1] - 393:22		models [2] - 151:14, 349:20
Medalist [1] - 152:17		million [1] - 279:13		moisten [2] - 53:16, 120:6
media [2] - 43:15, 423:1		millions [1] - 342:8		moisture [8] - 171:19, 174:9, 178:19, 178:22, 178:24, 179:8, 180:19, 190:2
meet [5] - 122:12, 122:13, 282:15, 297:21, 333:18		mind [13] - 7:25, 20:21, 52:24, 85:18, 96:5, 115:9, 138:18, 154:8, 189:13, 189:15, 249:12, 416:25, 432:2		moment [8] - 44:17, 138:25, 153:24, 221:23, 289:16, 350:12, 366:16, 399:7
Mellon [1] - 412:11		minds [3] - 14:13, 196:9, 196:11		money [4] - 287:15, 329:15, 342:6
member [8] - 195:1, 195:4, 195:5, 195:7, 195:8, 210:24, 268:23, 412:18		mine [2] - 155:13, 409:2		monitor [1] - 393:22
Member [1] - 98:14		minimum [9] - 35:7, 66:12, 168:12, 174:6, 174:7, 175:20, 180:5, 364:9, 376:2		monitored [2] - 352:13
members [4] - 155:14, 195:12, 346:25, 347:3		minimus [1] - 179:22		Monitoring [1] - 398:6
membership [1] - 412:22		Minnesota [7] - 23:10, 23:12, 41:10, 245:24, 246:2, 246:14, 255:13		monitoring [4] - 352:8, 397:25, 398:9
memoranda [1] - 244:15		minor [3] - 36:15, 36:16, 36:17		Montana [1] - 48:9
memorandum [1] - 99:6		minus [2] - 257:4, 399:4		month [2] - 68:19, 88:21
men [1] - 22:25		minute [30] - 19:4, 39:1, 126:4, 170:2, 170:8, 171:12, 171:16, 173:1, 175:8, 177:1, 177:2, 201:8, 201:9, 292:13, 343:20, 389:10, 390:15, 410:7, 410:10, 410:11, 410:13, 410:16, 410:18, 410:20		months [4] - 103:20, 125:10, 125:14, 125:21
Menlo [1] - 346:1		minutes [62] - 42:15, 99:25, 125:5, 126:5, 126:12, 129:24, 130:5, 130:22, 131:1, 131:2, 131:11, 131:25, 132:19, 132:20, 134:4, 134:6, 148:19, 149:2, 168:12, 168:15, 168:24, 172:15, 173:1, 173:2, 175:5, 177:6, 177:22, 179:6, 194:17, 226:9, 226:15, 229:15, 233:8, 233:24, 236:20, 236:21, 344:25, 388:11, 388:20,		Moore [4] - 155:11, 155:25, 156:7, 195:13
mention [6] - 23:6, 26:7, 27:22, 64:3, 91:14, 91:15				more-than-adequate [1] - 41:1
mentioned [23] - 8:20, 21:11, 58:16, 61:20, 91:12, 111:13, 117:3, 153:12, 154:10, 168:1, 227:11, 277:19, 297:4, 306:14, 342:4, 350:9, 350:20, 350:21, 368:11, 371:24, 425:21, 432:5, 433:24	messed [1] - 350:2			morning [24] - 6:5, 6:8, 6:11, 6:16, 6:23, 7:16, 7:18, 47:11, 74:13, 74:14, 78:8, 92:9, 92:21, 100:8, 100:9, 126:1, 126:18, 126:24, 131:19, 132:1, 133:23, 134:3, 144:22, 261:9
mentioning [1] - 91:22	met [9] - 82:2, 117:20, 118:1, 239:20, 240:12, 282:1, 282:2, 282:16, 434:13			most [47] - 16:2, 19:7, 20:23, 31:5, 32:8, 39:9, 64:13, 76:7,
merchandise [2] - 83:22, 84:3	methodology [3] - 220:9, 348:20, 381:20			
mere [1] - 16:22	methods [1] - 356:4			
message [16] - 109:24, 111:11, 111:24, 125:25, 129:15, 132:15, 133:23, 135:6, 140:15, 141:2, 275:17, 275:21, 316:23, 338:2, 338:3, 338:5	Miami [3] - 311:16, 311:20, 322:10			
messages [75] - 43:20, 43:23, 43:24, 76:4, 89:25, 92:7, 100:11, 100:17,	Michael [1] - 155:11			
	Michigan [2] - 47:15, 151:5			
	middle [4] - 111:8, 131:18, 325:1, 369:9			
	might [25] - 20:14, 84:23, 142:4, 144:2, 183:13, 208:6, 262:22, 283:12, 296:14, 308:17, 312:4, 314:20, 317:4, 320:4, 327:18, 328:4, 329:7, 329:16, 336:13, 357:5, 366:18, 387:24, 392:7, 439:2, 455:19			

76:24, 80:3, 162:10,
162:17, 162:21,
164:3, 173:21,
189:4, 199:11,
199:14, 199:17,
199:22, 200:2,
200:3, 200:4,
222:22, 228:22,
235:23, 235:24,
304:18, 317:14,
324:22, 325:3,
330:7, 357:23,
363:7, 371:2, 374:1,
374:5, 393:4,
406:10, 407:21,
408:10, 423:10,
426:20, 431:1,
431:10, 442:2,
455:12
Most [1] - 409:8
mostly [3] - 141:22,
141:25, 442:6
motivated [1] - 160:21
motivates [1] - 178:12
motive [1] - 278:8
move [12] - 124:21,
148:23, 149:6,
149:15, 211:5,
211:6, 219:12,
242:18, 272:1,
385:24, 387:25,
428:8
moved [5] - 8:4,
129:8, 149:24,
175:4, 328:8
movement [2] - 12:2,
382:7
moving [1] - 165:23
MR [243] - 5:4, 5:5,
5:8, 7:4, 7:10, 7:12,
7:14, 7:15, 7:16,
7:19, 28:17, 42:14,
47:1, 47:3, 47:10,
48:10, 52:6, 52:25,
62:7, 62:8, 65:20,
65:22, 66:4, 66:23,
89:8, 91:19, 97:14,
97:15, 97:16, 98:2,
98:5, 98:20, 98:22,
99:16, 100:2, 100:4,
100:7, 104:6,
105:13, 111:20,
112:10, 112:15,
112:18, 112:19,
124:20, 135:25,
136:2, 136:7,
136:11, 136:16,
136:20, 138:25,
139:2, 139:5, 139:7,
143:8, 143:10,

143:13, 145:21,
145:22, 148:5,
148:8, 148:11,
148:15, 148:17,
148:20, 148:22,
148:23, 149:4,
149:5, 150:1, 150:3,
150:6, 150:13,
192:13, 194:14,
194:15, 194:17,
194:21, 198:23,
203:15, 203:17,
222:1, 225:17,
225:18, 225:22,
226:7, 226:14,
226:20, 227:5,
227:9, 227:15,
227:17, 227:25,
233:15, 242:13,
242:18, 242:19,
243:11, 246:8,
247:16, 247:19,
247:21, 249:16,
251:5, 251:8, 255:7,
255:8, 255:10,
255:23, 256:25,
257:2, 259:13,
259:14, 259:16,
260:17, 260:18,
260:19, 260:21,
260:25, 261:8,
265:9, 265:20,
265:23, 266:9,
266:18, 266:20,
268:5, 268:13,
271:1, 271:6, 271:7,
271:22, 271:24,
277:16, 278:23,
279:1, 279:2, 279:4,
294:16, 294:17,
294:18, 295:11,
295:19, 298:7,
298:8, 298:10,
318:2, 318:4,
321:18, 321:22,
321:24, 322:1,
340:15, 340:17,
340:18, 340:20,
342:15, 342:17,
342:18, 342:22,
342:23, 343:2,
343:3, 343:13,
343:14, 343:15,
343:20, 343:21,
343:23, 343:24,
344:16, 344:18,
344:19, 344:22,
344:23, 344:25,
345:2, 345:8, 373:8,
373:10, 380:2,
380:3, 385:25,

386:1, 392:16,
395:16, 395:24,
400:19, 400:22,
401:3, 401:4, 401:5,
401:18, 401:21,
401:25, 402:6,
402:8, 402:14,
402:17, 402:19,
402:21, 408:1,
408:2, 408:5, 409:7,
409:12, 409:16,
411:13, 411:15,
411:16, 411:17,
411:23, 427:15,
427:16, 427:19,
436:8, 437:23,
438:1, 438:4, 439:9,
439:10, 439:11,
439:13, 439:20,
448:11, 448:13,
449:13, 450:9,
453:25, 454:17,
454:19, 454:21,
455:23, 455:24,
456:2, 456:3, 456:4,
456:13, 456:21,
457:1, 457:2, 457:3
MS [1] - 198:25
multidisciplinary [1] -
413:4
multiple [10] - 54:21,
89:14, 188:19,
231:24, 232:3,
351:16, 423:8, 429:3
multiples [1] - 379:2
multivariable [2] -
370:25, 371:5
Murphy [1] - 152:17
must [6] - 92:17,
275:19, 275:25,
276:25, 316:25,
334:10
mutual [1] - 55:10

N

N.W [2] - 2:21, 3:21
name [15] - 47:12,
81:24, 82:24, 84:5,
93:8, 123:2, 150:14,
150:16, 228:1,
261:10, 281:12,
345:9, 373:14,
411:24, 439:21
named [2] - 84:15,
307:5
names [1] - 82:15
narrowly [1] - 335:25
Nash [13] - 42:16,
42:21, 44:8, 44:13,

44:15, 45:14, 45:19,
61:19, 66:7, 91:17,
255:11, 321:23,
340:15
NASH [39] - 2:22, 5:5,
28:17, 98:2, 148:17,
148:22, 243:11,
246:8, 247:19,
251:8, 255:7,
255:23, 259:14,
259:16, 260:17,
265:9, 265:20,
265:23, 266:18,
268:5, 271:1,
271:22, 278:23,
279:2, 294:18,
295:19, 298:7,
298:10, 321:24,
322:1, 340:17,
342:22, 343:2,
343:13, 344:18,
344:22, 380:2,
436:8, 457:1
Nash's [2] - 44:22,
200:5
NATIONAL [6] - 1:1,
2:3, 2:15, 2:20, 3:3,
3:9
National [4] - 1:14,
228:7, 256:20,
257:20
Natural [2] - 353:18,
393:25
natural [19] - 17:1,
247:6, 290:14,
314:14, 351:17,
373:23, 388:1,
388:14, 388:21,
389:5, 389:10,
389:24, 390:6,
390:21, 392:19,
403:14, 404:13,
408:20, 455:12
naturally [1] - 164:12
nature [3] - 152:21,
337:2, 439:6
navigate [2] - 193:23,
193:24
NBA [1] - 322:12
near [2] - 223:1,
438:17
nearly [3] - 55:7,
417:14, 419:12
necessarily [3] -
76:20, 286:1, 433:21
necessary [4] - 7:1,
7:12, 14:19, 343:18
Ned [2] - 311:18,
335:5
need [21] - 7:9, 20:10,

27:6, 70:15, 85:9,
133:5, 238:4, 238:7,
247:5, 248:23,
249:6, 268:3, 282:4,
283:10, 288:11,
288:20, 297:21,
309:7, 328:3,
339:22, 415:2
needed [7] - 134:17,
280:7, 282:13,
283:3, 309:4, 348:4,
348:11
needle [3] - 328:14,
351:9, 351:13
needles [2] - 136:4,
350:8
needs [4] - 19:10,
41:18, 142:8, 179:18
negative [1] - 18:16
negatively [1] - 154:20
neighborhood [1] -
420:13
nervous [3] - 78:21,
79:1, 281:23
neutrally [1] - 188:10
never [58] - 11:8,
11:12, 11:13, 12:10,
12:17, 14:23, 15:17,
18:2, 22:12, 22:19,
23:8, 25:7, 25:9,
34:16, 50:20, 50:24,
55:14, 61:11, 70:22,
70:23, 71:15, 96:15,
115:5, 115:7, 115:9,
116:7, 116:13,
119:19, 119:20,
121:12, 122:10,
130:15, 137:4,
137:6, 137:9,
137:10, 139:22,
229:23, 231:11,
237:3, 251:3, 275:3,
275:4, 275:5,
295:22, 295:25,
334:24, 369:8,
376:14, 378:24,
442:19, 445:22,
449:7, 449:10,
450:6, 453:13
nevertheless [1] -
182:1
New [35] - 1:16, 2:4,
2:11, 2:12, 2:16,
2:21, 3:10, 3:16, 6:1,
24:3, 47:7, 47:19,
61:13, 61:16, 82:8,
150:10, 227:22,
261:5, 280:19,
280:24, 300:9,
330:6, 330:19,

345:5, 411:20,
439:17, 457:8
new [30] - 7:22, 9:19,
40:3, 45:24, 46:17,
49:9, 53:18, 68:23,
69:12, 69:21, 70:15,
70:24, 76:13, 88:11,
88:19, 105:19,
106:8, 106:12,
106:25, 108:17,
218:21, 219:5,
219:7, 219:8,
255:21, 377:17,
378:17, 379:5,
379:7, 401:6
NEW [1] - 1:24
news [1] - 142:14
next [59] - 12:22, 51:1,
58:2, 58:5, 61:18,
71:22, 72:5, 79:18,
92:13, 102:17,
127:4, 131:2, 131:8,
134:23, 148:22,
150:6, 159:19,
160:12, 161:10,
162:12, 163:14,
166:3, 169:2, 169:3,
174:2, 174:10,
175:13, 176:24,
177:3, 181:13,
183:24, 184:15,
187:5, 187:14,
226:4, 239:18,
248:1, 258:23,
260:25, 279:22,
280:19, 281:2,
281:3, 282:16,
293:22, 333:5,
334:4, 334:5, 336:6,
342:17, 343:15,
351:8, 351:17,
355:3, 385:24,
409:12, 411:16,
428:14, 451:1
NFL [94] - 2:10, 4:8,
4:13, 5:13, 5:20, 9:5,
14:4, 18:4, 20:12,
20:24, 21:1, 22:3,
24:4, 25:10, 28:5,
40:13, 46:6, 47:16,
47:21, 48:20, 58:18,
62:3, 65:12, 66:11,
77:4, 87:13, 87:15,
87:18, 99:18,
104:12, 105:10,
111:5, 113:10,
113:13, 113:21,
114:5, 139:6,
191:11, 218:1,
226:8, 231:7, 234:2,

234:10, 237:23,
238:25, 248:21,
249:15, 253:25,
258:14, 261:21,
261:24, 263:11,
263:15, 264:1,
264:12, 265:3,
266:8, 266:11,
266:15, 266:21,
266:25, 267:15,
270:7, 270:17,
270:18, 271:11,
271:12, 271:16,
279:16, 298:2,
309:18, 310:14,
311:2, 311:3, 321:1,
321:8, 321:11,
322:10, 324:16,
324:23, 325:13,
331:18, 337:4,
339:13, 339:14,
343:25, 344:3,
344:7, 344:14,
344:23, 376:22,
376:24, 378:11
NFL's [2] - 10:25,
45:10
NFLPA [24] - 7:20,
62:3, 64:18, 78:6,
101:22, 104:6,
104:12, 106:23,
150:6, 226:2, 226:3,
237:17, 242:5,
248:2, 252:11,
253:13, 254:5,
255:11, 300:20,
334:12, 334:13,
335:6, 359:16
nice [1] - 333:18
nickname [1] - 92:6
night [9] - 67:5, 67:9,
71:6, 71:11, 71:12,
71:13, 92:16, 93:5,
306:24
nine [3] - 131:11,
152:15, 152:25
nine-year [2] - 152:15,
152:25
Nobel [3] - 152:16,
188:21, 330:15
nobody [5] - 16:12,
235:2, 235:9, 291:3,
320:4
noise [1] - 413:17
nominal [1] - 426:23
non [76] - 17:11,
161:25, 184:22,
185:2, 186:7, 186:9,
186:12, 186:24,
188:1, 217:8,

221:10, 221:17,
221:22, 232:11,
232:15, 241:7,
291:17, 291:22,
293:1, 294:8, 295:5,
296:4, 301:7,
301:13, 301:21,
301:25, 303:1,
303:6, 316:9,
323:25, 355:5,
355:11, 356:12,
364:4, 365:13,
366:15, 366:17,
366:22, 366:24,
367:3, 367:7,
368:19, 369:1,
369:5, 375:1, 375:6,
377:21, 378:23,
379:4, 392:1, 392:5,
392:10, 392:16,
403:1, 403:12,
403:17, 404:6,
404:7, 404:9,
404:11, 404:25,
405:2, 405:12,
408:7, 408:8,
408:20, 410:4,
414:4, 419:6,
421:19, 426:17,
435:4, 435:15,
447:7, 447:9, 447:14
non-factors [1] -
356:12
non-logo [73] - 17:11,
161:25, 184:22,
185:2, 186:7, 186:9,
186:12, 186:24,
188:1, 217:8,
221:10, 221:17,
221:22, 232:11,
232:15, 241:7,
291:17, 291:22,
293:1, 294:8, 295:5,
296:4, 301:7,
301:13, 301:21,
301:25, 303:1,
303:6, 316:9,
323:25, 355:5,
355:11, 364:4,
365:13, 366:15,
366:17, 366:22,
366:24, 367:3,
367:7, 368:19,
369:1, 369:5, 375:1,
375:6, 377:21,
378:23, 379:4,
392:1, 392:5,
392:10, 392:16,
403:1, 403:12,
403:17, 404:6,
404:7, 404:9,

404:11, 404:25,
405:2, 405:12,
408:7, 408:8,
408:20, 410:4,
414:4, 419:6,
421:19, 426:17,
447:7, 447:9, 447:14
non-significance [2] -
435:4, 435:15
none [18] - 12:3,
13:12, 16:4, 18:19,
44:1, 90:8, 136:5,
144:8, 174:21,
239:11, 239:15,
240:18, 240:19,
321:9, 323:18,
356:8, 356:18,
451:24
nonscientific [1] -
16:15
nonsignificant [2] -
425:22, 425:25
normal [8] - 77:14,
83:13, 88:4, 98:5,
108:10, 123:11,
255:4, 284:7
normally [5] - 68:13,
72:2, 72:22, 80:18,
88:8
Northwestern [1] -
155:12
Notary [8] - 47:6,
150:9, 227:21,
261:4, 345:4,
411:19, 439:16,
457:7
NOTARY [1] - 1:24
note [16] - 8:13, 8:24,
11:5, 21:9, 21:10,
27:14, 27:21, 28:12,
97:17, 160:20,
226:7, 237:7, 242:9,
254:7, 334:6, 337:10
noted [3] - 76:2,
226:15, 327:5
notes [15] - 8:21,
79:19, 238:25,
244:14, 258:15,
259:1, 298:14,
298:18, 299:3,
299:20, 320:17,
320:20, 321:10,
395:18, 457:10
noteworthy [1] -
152:14
nothing [28] - 9:12,
13:8, 15:5, 26:15,
42:25, 85:2, 97:21,
139:1, 145:21,
145:22, 171:13,

173:7, 173:9, 215:5,
225:17, 225:18,
227:17, 258:3,
260:18, 269:20,
304:10, 310:8,
373:8, 408:1, 439:9,
439:10, 448:11,
455:23
notice [25] - 9:4,
21:14, 21:15, 21:21,
22:2, 22:4, 26:20,
26:24, 27:7, 27:8,
27:10, 32:6, 32:22,
35:9, 35:24, 36:11,
45:21, 46:1, 46:23,
72:14, 78:7, 257:24,
335:10, 355:16,
381:22
noticed [1] - 13:4
noting [1] - 242:11
notion [3] - 422:25,
427:6, 453:8
November [9] - 24:7,
102:20, 103:2,
103:8, 103:10,
103:23, 104:15,
112:21, 248:4
nuanced [1] - 288:7
nub [1] - 53:12
nubby [1] - 53:10
nubs [2] - 53:10,
53:11
Number [10] - 111:9,
111:19, 162:6,
162:8, 176:10,
176:11, 222:2,
222:13, 365:17,
367:16
number [51] - 14:22,
43:5, 44:5, 58:12,
62:3, 83:15, 86:5,
88:23, 88:25, 89:6,
89:7, 89:11, 103:19,
114:16, 114:24,
114:25, 115:10,
115:12, 116:1,
124:6, 126:16,
129:11, 161:17,
176:13, 183:10,
184:10, 190:20,
190:24, 191:1,
208:19, 224:10,
293:14, 299:9,
304:4, 319:7,
339:14, 339:16,
350:16, 361:11,
363:15, 363:20,
364:18, 365:18,
374:12, 387:1,
390:9, 415:11,

415:12, 446:4
numbers [18] -
 161:20, 161:21,
 163:11, 219:20,
 241:10, 241:12,
 283:20, 283:21,
 287:6, 287:8,
 287:13, 287:17,
 320:12, 329:18,
 364:22, 365:7,
 371:2, 438:18
Numbers [1] - 104:12
Numeral [1] - 124:24
numeral [1] - 327:5
numerical [1] - 418:2
numerous [3] - 37:25,
 76:14, 378:11
NW [1] - 3:3

O

oath [6] - 11:11,
 149:13, 255:20,
 379:20, 379:25,
 385:15
object [4] - 265:9,
 266:5, 266:18, 268:5
objection [10] - 8:7,
 136:7, 150:1,
 243:11, 246:8,
 255:23, 265:12,
 271:22, 278:23,
 380:2
Objection [2] - 436:8,
 450:9
objections [1] - 7:9
objective [3] - 284:13,
 323:11, 348:16
objectivity [1] -
 348:17
obligated [1] - 334:12
obligation [1] - 15:18
observation [5] -
 252:8, 271:8,
 287:23, 370:8, 447:4
observations [15] -
 191:2, 224:12,
 225:7, 251:22,
 274:5, 287:1, 350:4,
 368:15, 390:10,
 407:17, 422:15,
 437:5, 437:8,
 437:15, 439:7
observe [1] - 146:11
observed [13] -
 174:22, 205:4,
 205:25, 206:11,
 212:18, 213:6,
 221:12, 270:6,
 294:3, 355:25,

413:17, 431:21,
 442:8
observing [1] - 119:23
obtained [1] - 225:9
obvious [1] - 415:17
Obviously [1] - 437:4
obviously [20] - 6:20,
 6:23, 7:1, 14:6,
 20:23, 28:20, 31:21,
 58:25, 61:24, 76:10,
 79:1, 90:19, 95:10,
 123:11, 135:18,
 137:18, 152:20,
 416:7, 444:19,
 447:12
occupation [2] -
 228:5, 261:12
occur [1] - 406:19
occurred [20] - 10:9,
 32:20, 108:22,
 111:12, 167:9,
 167:21, 206:5,
 208:24, 208:25,
 210:15, 357:24,
 358:1, 385:5, 385:7,
 393:4, 408:10,
 408:18, 408:19,
 409:9
occurs [1] - 174:20
October [5] - 52:5,
 52:12, 62:11, 62:13,
 70:13
OF [3] - 1:3, 1:24
offense [7] - 26:11,
 26:13, 26:20,
 236:13, 384:17,
 385:2, 385:9
offer [2] - 182:12,
 190:15
offered [1] - 98:6
office [10] - 128:19,
 133:11, 146:20,
 146:21, 146:23,
 247:7, 247:14,
 248:13, 333:20,
 345:25
official [9] - 192:12,
 192:15, 236:6,
 241:5, 319:13,
 319:23, 388:12,
 389:4, 390:5
Official [3] - 160:2,
 160:3, 191:11
officially [1] - 412:17
officials [29] - 35:10,
 60:3, 61:7, 160:4,
 161:2, 161:19,
 189:5, 190:7,
 191:22, 192:20,
 222:25, 229:7,

230:15, 230:22,
 232:13, 248:9,
 249:2, 251:19,
 251:25, 252:3,
 252:4, 252:5, 254:9,
 254:13, 254:20,
 310:14, 391:7,
 407:16, 415:24
officials' [5] - 121:25,
 122:5, 123:20,
 358:2, 406:8
officiating [2] -
 192:16, 229:2
often [1] - 88:8
oily [1] - 55:7
old [10] - 45:25, 46:2,
 53:4, 55:12, 56:25,
 69:3, 128:6, 379:8,
 379:16, 380:6
older [6] - 219:4,
 219:5, 296:12,
 379:18, 379:21,
 380:5
once [15] - 50:25,
 52:1, 116:13,
 125:19, 125:21,
 148:1, 171:15,
 172:13, 177:14,
 252:20, 332:8,
 401:19, 441:25
one [208] - 6:10, 8:13,
 12:11, 13:3, 14:4,
 15:13, 15:24, 16:2,
 16:19, 18:21, 18:22,
 20:23, 21:11, 21:16,
 22:3, 22:18, 25:13,
 26:17, 30:15, 41:17,
 42:1, 42:16, 45:15,
 49:11, 49:20, 52:3,
 52:9, 54:7, 54:23,
 56:7, 56:15, 60:21,
 64:5, 66:7, 75:15,
 77:10, 80:7, 84:14,
 91:7, 91:20, 93:18,
 93:19, 94:9, 94:10,
 94:12, 94:14, 97:12,
 100:15, 100:21,
 101:2, 124:16,
 126:4, 129:8, 130:5,
 130:13, 135:10,
 135:17, 138:25,
 139:19, 143:10,
 144:15, 144:17,
 144:23, 152:14,
 153:9, 153:22,
 157:18, 160:20,
 161:6, 161:16,
 162:1, 171:20,
 180:7, 180:9, 186:4,
 188:4, 189:4, 195:6,

196:9, 209:9,
 216:15, 218:17,
 220:9, 223:5, 226:9,
 229:6, 230:16,
 232:2, 232:3, 232:5,
 237:6, 237:8,
 237:11, 238:21,
 239:18, 240:13,
 240:15, 240:21,
 240:23, 240:25,
 241:23, 243:22,
 246:19, 246:20,
 247:25, 249:14,
 249:18, 251:17,
 251:25, 253:9,
 255:18, 256:12,
 256:15, 258:18,
 260:16, 264:9,
 269:23, 270:10,
 271:13, 272:16,
 273:1, 274:1,
 275:15, 283:22,
 288:18, 288:23,
 289:2, 289:8,
 290:16, 291:11,
 294:20, 294:24,
 296:5, 298:7,
 299:22, 301:13,
 301:18, 304:18,
 307:9, 315:1,
 315:19, 316:14,
 317:15, 322:6,
 323:4, 325:1, 330:7,
 335:11, 338:2,
 343:21, 343:24,
 349:7, 350:20,
 352:5, 352:15,
 361:19, 365:19,
 367:14, 368:14,
 369:15, 370:24,
 371:24, 374:19,
 376:23, 378:20,
 378:23, 379:1,
 380:25, 381:2,
 381:5, 381:9,
 381:11, 381:15,
 385:24, 386:22,
 387:3, 387:25,
 390:15, 395:14,
 396:1, 397:6,
 416:19, 416:25,
 421:7, 421:19,
 426:14, 426:18,
 427:3, 428:20,
 428:24, 429:5,
 429:10, 430:16,
 432:2, 433:11,
 436:24, 437:2,
 437:12, 437:15,
 437:20, 438:1,
 441:12, 445:7, 451:1

one-structured [3] -
 428:24, 429:5,
 429:10
ones [14] - 76:16,
 94:14, 140:23,
 141:8, 148:2,
 152:14, 154:14,
 240:5, 291:10,
 345:24, 356:9,
 381:12, 384:22,
 437:2
op [1] - 330:19
op-ed [1] - 330:19
open [3] - 7:25, 20:21,
 455:19
OPENING [1] - 5:3
opening [6] - 7:13,
 8:3, 61:19, 100:11,
 200:5, 315:17
operated [1] - 313:3
operating [1] - 308:21
Operations [10] - 18:7,
 24:13, 24:22, 25:1,
 25:7, 228:7, 228:10,
 231:8, 249:25,
 250:20
operations [1] -
 228:13
opinion [11] - 16:12,
 264:24, 323:3,
 323:11, 324:7,
 324:8, 324:9,
 324:15, 374:22,
 374:23, 452:4
opinions [2] - 264:18,
 267:3
opportunity [5] - 7:20,
 30:1, 211:10, 221:7,
 448:2
opposed [7] - 77:14,
 77:15, 81:6, 362:10,
 368:19, 387:3,
 435:18
opposite [3] - 292:8,
 422:7, 430:25
Ops [1] - 307:7
options [3] - 188:1,
 188:3, 315:19
oral [1] - 268:17
orally [1] - 269:2
oranges [2] - 361:21,
 373:1
order [37] - 17:9,
 20:16, 41:12,
 176:18, 211:14,
 211:21, 212:9,
 212:17, 212:20,
 213:1, 213:4, 213:7,
 213:18, 230:15,
 243:8, 282:1, 290:9,

344:23, 369:21,
397:21, 407:13,
415:21, 415:23,
416:3, 416:7,
419:12, 425:3,
425:4, 425:9,
425:12, 425:13,
425:20, 425:22,
429:21, 431:15,
438:7
orderly [2] - 251:14,
251:17
ordinarily [1] - 25:3
ordinary [1] - 108:15
organization [5] -
63:24, 97:7, 143:5,
151:10
organize [1] - 161:8
organized [3] -
157:14, 161:14,
162:5
oriented [2] - 49:24,
347:16
original [9] - 18:7,
68:20, 70:12,
151:24, 152:6,
210:18, 210:20,
210:24, 337:13
originally [2] - 395:4,
415:3
otherwise [2] -
265:11, 315:12
ought [1] - 305:25
ourselves [1] - 348:11
outcome [12] - 186:3,
215:22, 220:2,
220:3, 222:10,
284:12, 363:23,
364:25, 365:10,
365:11, 365:16,
447:3
outdoor [1] - 447:20
outer [1] - 409:23
outfit [1] - 281:9
outraged [1] - 280:21
outset [2] - 8:14,
348:6
outside [12] - 28:6,
164:8, 164:9, 221:6,
234:16, 292:15,
292:19, 307:9,
307:18, 309:1,
322:20, 369:13
outstanding [1] -
109:4
overall [8] - 41:17,
162:16, 286:1,
395:15, 396:16,
402:11, 404:22,
405:17

overinflated [3] - 94:3,
115:17, 120:9
overlap [5] - 403:11,
404:19, 409:17,
409:19, 409:22
overlaps [1] - 405:20
overlay [2] - 358:21,
382:25
overreact [1] - 248:24
overruled [2] - 452:5,
455:4
oversee [1] - 6:20
overseeing [2] -
228:13, 262:3
overstating [1] - 444:7
overturn [1] - 46:11
overturning [1] - 7:23
overturns [1] - 21:20
overview [1] - 153:13
own [15] - 73:25,
156:1, 156:17,
201:11, 201:13,
206:17, 220:9,
223:10, 232:24,
237:21, 244:14,
246:15, 285:10,
346:10, 442:10
owners [2] - 22:10,
250:23

P

p-factor [1] - 369:17
p-value [17] - 166:6,
166:23, 168:13,
177:12, 177:14,
177:23, 177:24,
179:9, 179:11,
222:5, 222:7,
418:20, 419:20,
420:4, 420:15,
424:23, 425:23
p-value's [2] - 166:13,
420:12
p-values [6] - 166:19,
381:24, 417:15,
418:24, 419:13,
432:14
p.m [15] - 111:12,
111:25, 112:1,
149:3, 194:19,
260:24, 345:1,
395:25, 457:5
packers [4] - 248:5,
254:12, 254:18,
254:24
page [93] - 26:2, 62:4,
78:5, 91:25, 94:8,
94:13, 105:16,
111:7, 111:8,

111:16, 111:17,
115:18, 124:23,
125:24, 126:15,
127:1, 127:2, 129:4,
129:10, 129:14,
129:21, 130:19,
131:8, 131:18,
132:6, 132:17,
132:18, 133:22,
139:10, 144:19,
162:14, 200:15,
201:12, 205:19,
208:19, 208:21,
222:1, 222:13,
222:19, 224:13,
224:18, 224:19,
224:23, 225:1,
238:20, 239:3,
240:2, 258:16,
259:3, 262:25,
263:9, 264:7, 272:2,
273:8, 273:9,
277:10, 286:3,
287:3, 298:12,
298:22, 298:23,
298:24, 300:19,
300:21, 318:10,
326:23, 326:25,
327:4, 330:14,
333:7, 333:13,
333:14, 337:25,
350:15, 350:16,
353:7, 354:12,
355:10, 367:15,
382:23, 388:8,
392:7, 397:11,
402:23, 403:25,
408:6
PAGE [1] - 5:3
Page [2] - 212:13,
430:4
pages [4] - 104:15,
299:5, 320:24, 338:1
paid [7] - 158:5,
278:21, 278:25,
279:5, 279:6,
279:14, 342:9
pair [1] - 62:11
pairs [1] - 225:2
Panda [3] - 62:12,
62:16, 277:19
panel [1] - 88:16
panels [1] - 196:8
panthers [2] - 246:13,
259:25
paper [7] - 59:9,
59:20, 59:24, 119:4,
153:17, 153:18,
264:21
paperwork [2] -

247:12, 247:13
paragraph [31] - 28:3,
36:2, 102:5, 102:11,
102:18, 107:1,
111:10, 111:23,
200:16, 205:20,
224:20, 225:1,
242:21, 242:22,
242:23, 263:10,
273:10, 300:23,
327:1, 327:4,
327:22, 334:4,
334:5, 334:19,
337:9, 348:25,
355:11, 355:22,
356:15, 356:24,
357:17
parameters [4] -
184:5, 205:10,
362:16, 362:17
pardon [2] - 144:17,
144:21
Park [5] - 1:15, 2:3,
2:15, 3:10, 346:1
parroted [1] - 280:6
parse [2] - 41:19,
41:21
Part [1] - 449:20
part [40] - 15:8, 34:7,
50:10, 82:10,
118:15, 138:3,
138:6, 151:20,
152:8, 152:10,
174:14, 182:18,
182:20, 200:2,
212:12, 218:14,
219:1, 219:15,
286:14, 286:18,
315:23, 320:6,
347:7, 352:1, 362:8,
384:11, 395:14,
396:10, 396:14,
396:15, 396:24,
403:9, 417:1,
421:16, 423:5,
426:4, 431:5, 442:2,
449:21, 455:3
part-time [1] - 82:10
partially [1] - 206:24
participate [3] -
237:22, 452:2,
456:25
participated [3] -
10:15, 273:23, 287:1
particle [5] - 440:20,
440:23, 448:19,
448:24, 449:3
particular [28] - 30:9,
30:20, 49:23, 54:23,
55:8, 80:22, 88:12,

114:25, 115:23,
116:23, 129:7,
133:4, 147:20,
211:19, 218:22,
228:24, 230:14,
242:23, 243:20,
245:11, 259:25,
276:9, 284:9,
323:17, 346:9,
401:5, 440:18,
449:11
particularly [10] -
6:13, 8:11, 12:10,
16:3, 158:1, 191:20,
327:13, 334:14,
345:24, 346:15
parties [2] - 98:7,
456:5
partly [3] - 57:9,
194:4, 194:5
partner [1] - 261:13
partners [1] - 324:13
parts [2] - 41:19,
220:7
PASH [1] - 2:5
Pash [21] - 261:20,
262:3, 262:5, 262:7,
263:15, 264:2,
264:10, 265:1,
265:5, 266:1, 266:7,
267:6, 267:7,
267:10, 267:25,
268:7, 268:16,
269:8, 269:14,
310:2, 310:8
Pash's [3] - 265:25,
266:12, 269:14
pass [1] - 150:4
passed [1] - 370:4
passer [1] - 135:3
passing [1] - 73:18
past [10] - 23:7, 60:22,
77:18, 84:21, 196:3,
196:12, 210:25,
249:20, 334:8,
376:22
path [1] - 165:21
patience [1] - 457:3
Patrick [1] - 47:13
Patriots [131] - 24:7,
29:25, 31:18, 33:3,
47:19, 47:23, 48:1,
51:6, 51:12, 51:18,
60:8, 61:7, 63:24,
74:10, 75:2, 82:5,
97:7, 118:25,
121:13, 121:21,
122:4, 129:1, 143:5,
144:9, 145:9,
160:15, 160:22,

161:15, 168:16, 176:19, 180:10, 189:25, 199:25, 200:20, 215:25, 216:8, 217:2, 217:10, 217:13, 217:23, 218:6, 221:12, 222:23, 229:12, 236:1, 236:6, 236:19, 238:2, 243:2, 248:5, 252:15, 252:16, 262:10, 263:16, 269:19, 273:14, 273:17, 293:4, 293:8, 293:9, 293:16, 293:20, 293:24, 294:2, 294:3, 294:7, 295:4, 295:8, 295:22, 296:3, 297:3, 297:5, 300:9, 307:8, 307:19, 310:23, 313:14, 314:4, 314:24, 320:8, 327:10, 329:6, 329:7, 330:13, 332:3, 332:6, 332:8, 332:12, 340:12, 349:5, 354:19, 354:23, 356:5, 356:11, 358:5, 358:15, 362:11, 364:8, 364:14, 368:7, 376:1, 376:4, 376:8, 383:4, 383:6, 383:15, 385:1, 385:13, 386:9, 388:9, 389:1, 396:10, 396:18, 398:14, 399:16, 399:17, 403:18, 403:21, 419:9, 419:15, 419:24, 420:1, 424:7, 424:10, 424:12, 432:21, 438:24, 450:22, 455:2 Patriots' [140] - 11:22, 16:20, 18:24, 34:3, 144:10, 155:7, 159:4, 159:12, 159:16, 160:1, 160:9, 161:4, 162:22, 163:7, 163:12, 163:17, 164:4, 164:7, 167:9, 167:20, 168:4, 168:21, 169:20, 171:8, 171:25, 174:9, 174:25,	175:2, 176:13, 176:15, 176:22, 178:15, 181:5, 181:7, 182:11, 183:14, 183:15, 183:22, 184:1, 185:15, 185:18, 187:17, 189:7, 192:22, 193:11, 193:13, 197:8, 200:16, 205:5, 206:11, 208:23, 215:15, 215:20, 216:20, 217:15, 218:24, 219:3, 222:24, 225:2, 235:13, 236:23, 239:10, 240:17, 253:2, 287:8, 289:5, 290:13, 318:22, 318:23, 319:14, 328:1, 350:22, 358:24, 362:4, 363:22, 365:10, 367:23, 368:18, 369:4, 370:1, 373:24, 376:16, 382:3, 382:15, 382:16, 382:21, 384:24, 387:2, 387:12, 387:17, 388:2, 388:4, 388:10, 388:18, 388:19, 389:2, 389:9, 389:22, 390:2, 390:22, 391:25, 396:2, 396:4, 398:18, 403:7, 404:20, 406:3, 406:7, 408:10, 408:17, 409:14, 409:20, 409:23, 414:8, 415:24, 417:22, 418:9, 418:13, 418:14, 418:16, 419:19, 421:18, 421:20, 421:24, 423:23, 434:24, 438:19, 438:21, 438:25, 439:7, 442:23, 446:23, 447:1, 449:17, 449:24, 450:13, 450:15, 455:8 pattern [2] - 87:1, 431:21 patterns [1] - 86:25 Paul [37] - 100:16, 100:22, 109:4, 110:1, 113:1, 113:6,	123:18, 138:11, 155:15, 261:13, 262:14, 263:13, 263:14, 264:17, 264:23, 267:5, 268:7, 270:15, 271:9, 278:21, 280:11, 280:20, 284:18, 285:8, 300:24, 307:17, 315:6, 327:5, 347:6, 348:8, 348:23, 357:25, 384:9, 406:5, 407:4, 408:9, 408:17 PAUL [1] - 3:15 pause [2] - 157:25, 224:23 pay [2] - 162:10, 192:9 payment [2] - 196:18, 196:21 pays [1] - 266:25 peace [1] - 330:15 pedantic [1] - 446:10 penalties [1] - 151:23 penalty [3] - 15:16, 23:15, 28:8 pending [1] - 344:16 people [77] - 15:20, 16:2, 16:4, 22:24, 23:1, 25:3, 25:5, 61:21, 80:3, 80:4, 82:9, 82:10, 82:20, 83:11, 83:23, 84:4, 89:6, 123:10, 154:4, 154:11, 154:14, 154:17, 155:15, 155:17, 188:19, 190:13, 191:25, 194:11, 200:3, 209:3, 210:11, 227:1, 243:24, 244:7, 244:25, 252:5, 276:20, 281:21, 282:13, 289:15, 292:13, 294:12, 302:25, 303:21, 304:4, 306:4, 306:13, 308:22, 309:1, 310:11, 310:23, 311:18, 314:21, 315:14, 324:19, 325:12, 325:14, 330:23, 331:4, 337:19, 337:22, 338:20, 340:6, 342:21, 342:24, 343:4, 343:8, 343:16, 347:2,	347:22, 350:9, 376:8, 437:12, 445:5, 446:2, 456:21 people's [3] - 90:25, 196:9, 196:10 per [2] - 113:23, 441:7 percent [31] - 165:2, 166:21, 179:13, 181:21, 222:8, 222:9, 307:13, 309:8, 354:17, 369:18, 369:24, 375:10, 375:20, 386:8, 386:9, 419:21, 419:22, 420:6, 420:7, 420:16, 420:17, 420:18, 432:12, 432:13, 432:15, 432:17, 432:23, 433:12, 433:15, 451:4 perfect [1] - 294:21 perfectly [4] - 302:1, 302:4, 316:10, 444:5 perfectly-calibrated [1] - 302:4 perform [4] - 50:14, 336:2, 349:9, 352:1 performed [11] - 158:9, 158:10, 198:2, 198:7, 215:16, 224:16, 349:14, 368:2, 412:25, 413:7, 413:14 perhaps [2] - 145:22, 325:9 period [48] - 13:25, 39:14, 39:19, 77:20, 79:20, 89:10, 103:8, 103:10, 103:14, 103:19, 104:4, 104:18, 104:20, 107:16, 107:18, 112:4, 112:5, 112:21, 113:19, 139:16, 142:11, 142:12, 144:17, 144:18, 152:15, 152:25, 168:8, 170:8, 179:5, 215:13, 236:2, 366:7, 372:4, 377:9, 379:3, 383:15, 387:15, 392:6, 392:9, 398:24, 398:25, 400:2, 400:7, 408:11, 409:10, 440:11,	450:3 periodically [1] - 87:10 permeability [2] - 351:18, 351:21 permissible [3] - 115:22, 118:9, 121:12 permission [5] - 308:11, 308:18, 308:23, 309:6, 309:12 permitted [1] - 335:4 person [28] - 9:14, 9:15, 14:9, 20:4, 24:18, 24:23, 29:14, 29:21, 37:21, 82:4, 82:5, 84:1, 130:17, 144:7, 154:5, 154:13, 161:20, 188:17, 228:22, 285:1, 297:12, 303:20, 307:9, 309:9, 309:10, 334:7, 338:18 personal [9] - 14:6, 25:6, 109:19, 228:20, 274:5, 287:1, 323:3, 324:7, 324:15 Personal [2] - 9:22, 22:16 personally [4] - 124:1, 137:3, 243:23, 246:24 personnel [3] - 22:24, 118:25, 121:14 perusing [1] - 287:3 Peterson [2] - 21:18, 45:24 petition [5] - 64:16, 64:19, 64:20, 64:24, 65:20 Peyton [3] - 64:11, 66:1, 66:2 Ph.D [9] - 151:20, 188:22, 284:24, 286:18, 346:22, 347:9, 347:15, 347:19, 412:10 pharmaceuticals [1] - 153:17 phenomena [2] - 403:14, 404:13 philosophy [1] - 445:25 phone [96] - 37:20, 39:18, 40:3, 40:4, 42:1, 43:8, 43:20, 43:21, 44:10, 44:24,
--	--	---	--	---

76:4, 76:8, 78:11, 78:14, 85:9, 87:5, 87:12, 87:15, 87:22, 88:1, 88:5, 88:9, 88:12, 88:13, 89:6, 89:8, 89:12, 89:25, 90:14, 90:17, 90:19, 91:1, 91:2, 91:5, 91:6, 102:5, 102:8, 102:12, 102:18, 103:6, 104:8, 104:15, 104:19, 104:23, 105:1, 105:19, 105:21, 106:3, 106:8, 106:12, 106:13, 106:17, 106:18, 106:20, 106:25, 107:15, 107:22, 107:24, 108:7, 108:9, 108:12, 108:17, 109:6, 109:9, 109:12, 109:20, 110:6, 110:25, 111:10, 111:24, 132:22, 134:4, 134:10, 139:16, 140:13, 140:18, 146:19, 230:14, 287:18, 313:7, 313:19, 331:15, 332:17, 334:17, 334:19, 335:1, 336:18, 337:1, 337:8, 337:10, 338:4, 339:2, 442:6, 442:9	363:5, 363:11, 375:22, 375:23, 388:6, 425:7, 425:16, 431:21 physically [2] - 82:5, 392:23 physicist [2] - 284:24, 330:16 physicists [4] - 280:8, 283:10, 284:20, 440:21 physics [10] - 33:24, 188:22, 281:5, 286:11, 440:16, 440:23, 440:24, 448:20, 448:24, 449:3 Physics [8] - 280:10, 280:14, 280:18, 280:20, 281:16, 281:21, 439:25, 440:4 pick [12] - 51:24, 52:1, 114:25, 115:10, 115:12, 115:21, 116:1, 116:12, 118:12, 386:7, 386:10 picked [14] - 71:24, 114:16, 114:24, 115:23, 118:13, 118:14, 148:2, 384:22, 386:10, 400:17, 400:23, 400:24, 401:8 picking [3] - 94:19, 95:5, 144:23 picture [2] - 351:3, 353:13 piece [3] - 59:9, 264:21, 444:9 pieces [2] - 275:15, 349:6 Pierre [1] - 155:13 pin [1] - 186:17 pissed [3] - 57:8, 57:9, 57:22 place [13] - 18:11, 162:15, 211:4, 230:19, 234:10, 248:4, 251:14, 252:23, 256:21, 276:5, 288:12, 399:1, 443:18 placed [2] - 104:7, 105:13 places [1] - 239:2 plain [1] - 452:22 plainly [1] - 40:23 plaintiff [1] - 284:9	plan [3] - 108:6, 283:18, 348:4 plane [1] - 166:1 planning [3] - 226:21, 348:19, 444:8 platform [1] - 372:13 plausible [19] - 38:10, 158:3, 179:22, 180:2, 180:3, 180:4, 180:13, 183:17, 187:3, 222:22, 384:24, 385:3, 385:14, 385:17, 385:19, 391:16, 391:21, 392:24 play [17] - 49:23, 52:1, 59:23, 76:11, 76:18, 77:10, 148:3, 186:10, 214:17, 236:20, 236:21, 303:18, 348:9, 360:21, 378:5, 442:13, 443:2 played [12] - 47:20, 49:2, 54:24, 55:1, 69:16, 73:15, 73:16, 74:4, 76:19, 257:4, 267:10 player [45] - 9:5, 9:10, 9:11, 9:25, 10:5, 10:11, 12:8, 19:11, 19:14, 22:12, 23:3, 23:19, 23:20, 24:19, 24:20, 25:10, 25:12, 25:13, 26:21, 28:4, 35:20, 36:1, 36:2, 41:5, 42:18, 42:19, 46:1, 46:2, 90:21, 99:14, 236:9, 236:12, 245:14, 245:17, 245:20, 245:21, 247:3, 251:2, 254:1, 257:18, 260:14, 260:15, 334:15 players [22] - 15:11, 21:13, 21:20, 22:15, 23:8, 24:1, 25:3, 25:8, 25:18, 25:19, 36:11, 39:11, 45:11, 46:10, 53:24, 250:24, 272:15, 272:18, 273:2, 311:19, 312:3, 312:4 Players [5] - 25:17, 25:23, 36:9, 36:10, 322:12 PLAYERS [4] - 3:3, 3:9, 4:8, 5:13 players' [2] - 25:5,	26:22 playing [11] - 52:3, 54:5, 117:1, 137:7, 170:16, 218:1, 229:21, 282:11, 372:23, 384:20, 385:10 plenty [3] - 170:24, 171:1, 171:4 plot [1] - 405:17 plotted [1] - 387:7 plug [1] - 364:19 plugging [1] - 219:20 plural [1] - 255:15 point [72] - 8:13, 10:1, 10:19, 28:21, 29:6, 30:15, 33:13, 34:1, 35:23, 37:13, 38:16, 38:20, 41:17, 42:25, 75:15, 80:13, 84:14, 107:22, 109:8, 114:17, 121:17, 129:2, 149:5, 157:25, 158:1, 162:1, 163:23, 164:1, 169:9, 169:18, 169:19, 174:20, 186:22, 190:2, 200:10, 204:10, 213:18, 219:10, 221:8, 242:12, 291:13, 313:16, 319:3, 320:3, 321:19, 343:19, 367:19, 378:23, 396:25, 399:5, 400:21, 402:16, 413:13, 415:11, 415:12, 415:25, 416:19, 420:19, 421:25, 424:18, 442:18, 442:25, 445:24, 446:11, 446:12, 446:13, 449:6, 449:12, 449:15, 453:19, 454:8, 456:1 pointed [6] - 340:4, 367:7, 425:2, 426:11, 432:9, 447:6 pointing [3] - 348:3, 366:21, 431:18 points [12] - 30:12, 33:10, 34:1, 42:16, 66:7, 178:14, 289:17, 303:23, 373:21, 374:10, 416:24, 426:2 policies [5] - 9:19, 21:21, 22:3, 22:15,	22:18 Policies [2] - 25:17, 25:23 Policy [10] - 2:7, 9:15, 9:22, 21:1, 22:16, 24:24, 25:5, 98:13, 98:24, 99:9 policy [46] - 9:3, 9:8, 9:21, 9:23, 22:8, 22:9, 22:19, 22:20, 22:22, 23:3, 23:25, 24:20, 24:24, 25:12, 25:13, 25:15, 26:2, 26:14, 26:15, 26:17, 26:18, 26:22, 44:19, 45:21, 45:25, 46:2, 46:15, 46:17, 86:13, 97:13, 98:13, 153:4, 250:13, 250:16, 250:19, 272:4, 272:8, 272:14, 273:1, 311:12, 311:21, 311:25, 312:3 ponder [1] - 445:5 pooled [1] - 419:17 population [2] - 437:19, 437:20 portion [3] - 104:11, 212:18, 213:5 portions [1] - 209:20 posed [1] - 11:8 position [10] - 9:3, 150:17, 150:21, 217:15, 284:9, 312:15, 338:13, 339:5, 421:14, 440:7 positions [2] - 412:12, 440:8 positive [2] - 18:16, 425:10 positively [1] - 154:20 possession [2] - 236:2, 377:22 possibilities [6] - 188:8, 369:6, 369:7, 392:21, 393:1, 393:2 possibility [12] - 186:19, 187:3, 192:25, 366:17, 366:20, 377:2, 385:4, 389:14, 409:24, 414:2, 414:6, 423:25 possible [27] - 49:10, 81:15, 82:17, 103:16, 120:17, 143:25, 144:4, 145:17, 237:5, 266:13, 297:17,
---	--	--	--	--

297:20, 314:20,
344:15, 368:23,
370:14, 384:14,
384:15, 385:6,
391:21, 392:19,
407:5, 408:20,
410:13, 410:24,
413:6, 444:21
possibly [12] - 26:1,
26:9, 59:1, 107:9,
107:21, 108:5,
108:19, 144:13,
229:8, 236:25,
395:19, 395:20
post [22] - 28:13,
192:21, 193:11,
193:14, 193:18,
193:25, 248:22,
249:4, 249:7,
249:13, 298:16,
318:7, 394:19,
451:6, 451:9,
451:15, 452:2,
454:23, 455:7,
455:18, 456:7,
456:18
post-game [18] -
192:21, 193:11,
193:14, 193:18,
193:25, 248:22,
249:4, 249:7,
249:13, 298:16,
318:7, 451:6, 451:9,
451:15, 452:2,
454:23, 455:7,
455:18
post-hearing [3] -
28:13, 456:7, 456:18
post-time [1] - 394:19
potential [10] - 29:16,
155:7, 191:25,
238:4, 349:10,
355:24, 365:6,
404:13, 421:8,
451:18
potentially [3] -
233:25, 403:13,
443:8
pounding [3] - 282:12,
328:12, 329:10
pounds [5] - 113:15,
113:23, 294:22,
294:25, 351:6
power [1] - 435:9
PowerPoint [2] -
330:20, 417:10
practical [2] - 221:4,
433:23
practice [26] - 43:10,
43:18, 45:10, 53:25,

76:23, 83:10, 83:13,
87:7, 87:19, 88:4,
88:18, 98:5, 105:18,
105:25, 106:6,
106:11, 106:16,
108:16, 108:20,
123:12, 182:4,
220:15, 304:18,
433:17, 433:18,
435:3
practiced [1] - 133:15
practices [4] - 49:3,
322:13, 325:18,
345:19
praised [1] - 330:11
praising [1] - 330:9
pray [1] - 258:19
pray-loo [1] - 258:19
pre [44] - 163:5,
163:25, 170:19,
172:23, 183:18,
186:5, 186:20,
187:2, 189:23,
200:23, 216:8,
217:11, 221:10,
221:17, 233:14,
233:15, 241:5,
249:5, 292:18,
364:9, 364:17,
365:1, 365:2,
365:14, 365:17,
366:24, 368:19,
368:24, 369:10,
370:5, 375:8,
375:13, 375:18,
376:8, 376:9,
376:16, 396:5,
408:8, 414:3, 414:6,
424:22, 425:19,
427:3
pre-game [43] - 163:5,
163:25, 170:19,
172:23, 183:18,
186:5, 186:20,
187:2, 189:23,
200:23, 216:8,
217:11, 221:10,
221:17, 233:14,
241:5, 249:5,
292:18, 364:9,
364:17, 365:1,
365:2, 365:14,
365:17, 366:24,
368:19, 368:24,
369:10, 370:5,
375:8, 375:13,
375:18, 376:8,
376:9, 376:16,
396:5, 408:8, 414:3,
414:6, 424:22,

425:19, 427:3
preceded [1] - 442:9
precedent [4] - 9:4,
9:24, 21:13, 43:2
precise [2] - 288:18,
334:10
precisely [1] - 106:2
preclude [1] - 363:10
predecessors [1] -
29:13
predicted [4] - 187:18,
358:6, 362:24,
365:11
prediction [1] - 188:17
predictions [1] - 394:1
predicts [1] - 288:9
predominant [1] -
325:3
preface [1] - 156:20
prefer [2] - 116:4,
373:17
preferably [1] - 280:8
preference [5] -
119:13, 119:14,
122:8, 124:2, 148:17
preferred [7] - 114:12,
114:15, 115:13,
118:5, 118:7,
119:17, 166:11
prefers [1] - 35:14
prejudice [1] - 268:13
prejudicial [1] - 455:1
preliminary [1] - 417:9
premises [2] - 43:3,
232:9
prep [2] - 24:10, 250:4
preparation [10] -
64:7, 69:5, 70:17,
81:4, 142:21,
267:18, 396:11,
396:16, 396:23,
400:4
preparations [2] -
356:4, 401:10
prepare [8] - 12:3,
64:21, 65:15, 77:2,
80:19, 80:20, 321:5,
396:13
prepared [16] - 11:2,
54:23, 60:24, 117:7,
144:7, 146:2,
264:16, 265:4,
268:8, 268:9,
269:24, 356:4,
356:8, 371:20,
399:22, 444:11
preparing [5] - 71:19,
80:18, 80:23,
250:10, 321:9
preponderance [5] -

324:17, 325:4,
420:23, 434:2,
434:12
prepping [1] - 49:21
presence [1] - 251:10
present [16] - 7:21,
10:22, 31:4, 45:8,
150:5, 169:17,
206:3, 234:21,
327:17, 333:23,
343:8, 359:6,
424:21, 429:6,
429:11, 430:5
presented [15] - 8:9,
65:12, 66:4, 197:21,
268:15, 285:6,
374:12, 380:10,
392:21, 404:11,
428:16, 428:19,
428:24, 429:1,
444:20
presently [1] - 113:13
presents [1] - 264:17
preserve [1] - 232:21
preserving [1] -
228:12
President [10] - 2:6,
2:7, 24:12, 24:22,
25:1, 25:6, 228:6,
228:9, 249:24,
263:15
president [4] - 246:7,
345:16, 345:17,
347:14
presidents [1] - 99:7
press [9] - 142:24,
261:25, 262:17,
264:1, 264:21,
309:17, 340:22,
341:17, 342:2
pressure [150] - 12:4,
12:11, 12:16, 13:2,
13:5, 16:20, 16:21,
16:22, 18:8, 18:18,
19:6, 60:8, 60:25,
63:5, 63:14, 64:25,
67:24, 68:6, 96:13,
114:18, 115:1,
115:13, 116:5,
116:8, 116:9,
116:14, 118:5,
118:8, 121:25,
141:4, 157:20,
158:24, 158:25,
162:23, 163:16,
166:18, 167:8,
167:20, 169:16,
171:15, 172:8,
172:10, 172:13,
197:7, 197:23,

199:20, 199:24,
200:17, 200:19,
204:22, 205:4,
206:1, 206:10,
208:23, 212:19,
213:6, 213:22,
215:24, 221:12,
222:15, 223:1,
230:23, 233:4,
234:16, 248:21,
250:17, 288:10,
291:6, 292:17,
314:14, 327:14,
327:20, 349:11,
350:11, 350:25,
351:7, 351:15,
352:13, 352:16,
353:18, 353:19,
353:21, 353:25,
354:20, 354:23,
355:14, 355:25,
356:10, 356:21,
356:23, 357:6,
357:10, 357:11,
357:15, 358:14,
359:18, 360:7,
360:23, 360:25,
361:14, 363:8,
364:8, 364:20,
366:3, 368:17,
370:5, 370:6,
370:13, 372:18,
380:13, 382:6,
384:12, 388:3,
394:13, 396:6,
397:17, 397:22,
397:24, 398:7,
398:9, 398:15,
398:20, 399:13,
399:14, 399:16,
399:18, 414:7,
414:18, 415:7,
416:23, 416:25,
418:1, 418:5, 422:5,
422:7, 425:10,
425:11, 425:14,
425:18, 426:23,
427:5, 427:6, 428:3,
431:11, 432:4,
432:19, 434:22,
445:18, 446:6,
447:17
pressures [14] - 13:7,
224:21, 225:1,
239:10, 353:2,
355:8, 357:13,
362:21, 374:14,
374:15, 374:16,
374:20, 374:21,
455:14
presumably [1] -

399:24
presume [3] - 161:9,
 161:24, 401:17
presumed [1] - 163:6
pretty [16] - 49:8,
 52:19, 127:14,
 347:25, 348:10,
 348:24, 354:12,
 356:15, 377:10,
 379:17, 407:14,
 410:22, 426:20,
 427:4, 435:21,
 446:14
previous [5] - 69:4,
 150:23, 245:6,
 245:7, 245:14
previously [10] -
 15:25, 92:10, 120:4,
 151:4, 153:6,
 211:25, 311:25,
 332:6, 359:1, 413:10
Princeton [8] - 33:24,
 281:16, 282:19,
 282:21, 439:25,
 440:2, 440:5, 440:8
principal [5] - 270:3,
 270:11, 345:16,
 347:3, 412:3
Principal [1] - 155:13
principle [4] - 21:16,
 21:17, 158:8, 438:5
principles [2] - 157:6,
 157:9
Prioleau [5] - 160:3,
 240:6, 258:19,
 259:8, 292:22
privacy [1] - 283:13
private [4] - 43:16,
 90:25, 152:5, 322:22
privilege [11] - 266:14,
 267:7, 267:16,
 268:3, 268:12,
 268:14, 269:13,
 270:21, 271:4,
 278:23, 311:25
privileged [6] - 265:7,
 265:10, 266:6,
 266:13, 270:1, 279:1
privy [1] - 138:7
Prize [2] - 152:16,
 188:21
prize [1] - 330:15
probability [4] -
 209:22, 369:23,
 409:24, 435:13
probable [11] - 10:8,
 10:15, 31:23, 38:11,
 273:13, 274:16,
 303:6, 317:11,
 324:19, 325:5, 325:7

probative [2] - 38:24,
 40:10
probed [1] - 441:15
problem [10] - 219:1,
 221:4, 340:3,
 340:12, 346:7,
 347:12, 393:9,
 418:7, 433:19,
 441:14
problems [6] - 328:13,
 345:24, 346:6,
 346:15, 369:18,
 418:6
procedural [1] - 262:9
procedural-type [1] -
 262:9
procedure [6] - 28:18,
 69:14, 308:21,
 383:8, 398:18,
 400:11
procedures [15] -
 6:18, 18:10, 18:14,
 18:18, 19:7, 19:19,
 230:22, 231:13,
 231:15, 233:2,
 315:2, 315:3,
 315:11, 315:14,
 340:14
proceed [7] - 6:16,
 223:5, 226:5,
 226:19, 342:25,
 343:6, 343:15
proceeded [2] -
 229:19, 327:23
proceeding [11] - 8:6,
 28:23, 31:12, 38:12,
 40:19, 104:10,
 110:14, 110:21,
 219:14, 270:8,
 271:11
proceedings [2] - 6:8,
 6:23
proceeds [1] - 227:13
process [34] - 48:24,
 49:9, 49:24, 50:6,
 50:22, 51:24, 52:18,
 52:19, 52:21, 53:22,
 53:23, 54:11, 60:22,
 65:9, 67:16, 68:13,
 69:3, 69:7, 69:21,
 70:23, 72:18, 76:12,
 77:19, 90:12, 146:1,
 146:25, 147:13,
 189:25, 231:2,
 251:13, 251:14,
 398:10, 411:1, 416:6
processes [5] - 54:13,
 54:20, 76:15, 122:2,
 154:23
produce [6] - 14:21,

15:7, 112:12, 336:2,
 341:12, 341:14
produced [12] - 86:18,
 89:9, 100:12, 104:9,
 110:16, 110:21,
 111:1, 247:17,
 247:19, 247:22,
 247:25, 337:24
produces [1] - 14:25
producing [2] -
 337:10, 341:10
products [1] - 346:16
professional [1] -
 154:16
professor [11] -
 150:19, 155:11,
 155:25, 281:2,
 281:3, 286:17,
 347:9, 372:24,
 433:7, 438:1, 440:17
Professor [14] -
 150:25, 156:7,
 195:13, 328:25,
 365:20, 371:14,
 371:21, 372:7,
 412:14, 414:10,
 422:11, 439:11,
 439:25, 440:3
program [2] - 395:15,
 396:16
programs [1] - 154:5
prohibited [2] - 46:3,
 256:22
project [6] - 152:22,
 156:13, 347:12,
 347:21, 347:22,
 348:5
projects [1] - 153:1
promoted [1] - 154:19
promulgate [2] - 9:19,
 46:17
pronounce [1] -
 373:13
pronounced [1] -
 415:14
proof [6] - 31:9, 31:10,
 324:15, 324:16,
 324:22, 324:24
proper [7] - 14:18,
 19:12, 21:12, 27:16,
 85:8, 246:16, 437:14
properly [6] - 50:12,
 177:7, 254:20,
 254:25, 351:18,
 424:4
properly-functioning
 [1] - 351:18
proposal [3] - 344:8,
 344:14, 344:21
propose [2] - 344:1,

344:5
proposed [2] - 334:11,
 456:6
proposition [1] -
 434:19
prose [1] - 430:12
protecting [1] - 40:14
protocol [17] - 34:13,
 34:21, 57:11, 167:3,
 190:8, 190:9, 192:8,
 192:20, 194:5,
 233:24, 234:13,
 255:5, 308:4, 309:7,
 309:12, 317:3, 317:6
protocols [7] - 119:6,
 165:15, 190:16,
 193:12, 314:11,
 314:15
prove [2] - 316:15,
 446:17
provide [23] - 10:4,
 14:17, 15:9, 15:14,
 30:1, 36:21, 36:22,
 37:2, 38:19, 38:23,
 43:19, 105:7,
 107:20, 107:24,
 109:10, 121:21,
 268:17, 268:22,
 268:23, 286:20,
 315:11, 327:6, 349:1
provided [22] - 15:19,
 38:1, 38:2, 39:13,
 43:19, 101:17,
 102:9, 102:24,
 103:3, 104:20,
 105:3, 105:6, 108:7,
 108:12, 110:13,
 158:12, 182:15,
 337:8, 339:13,
 339:16, 357:24,
 408:9
provides [2] - 41:1,
 159:14
providing [2] - 14:15,
 109:11
proving [1] - 201:18
proximity [1] - 280:11
proxy [2] - 416:4,
 416:9
psi [54] - 58:14, 58:17,
 63:5, 63:14, 63:20,
 73:6, 97:22, 114:8,
 115:7, 140:7, 163:7,
 163:8, 163:11,
 163:12, 169:12,
 171:10, 171:20,
 173:2, 174:17,
 175:12, 175:20,
 175:21, 177:19,
 177:22, 184:6,

192:2, 192:5,
 215:14, 216:1,
 216:8, 217:2,
 217:10, 217:13,
 218:2, 238:22,
 292:24, 353:20,
 355:18, 367:23,
 372:15, 375:11,
 375:17, 375:20,
 376:1, 396:21,
 397:17, 397:23,
 400:10, 417:23,
 417:24, 422:5, 455:9
psi's [2] - 65:5, 163:25
psychological [1] -
 116:25
public [11] - 7:24,
 11:6, 35:13, 119:22,
 121:2, 153:4, 244:9,
 247:23, 264:14,
 302:18, 344:11
PUBLIC [1] - 1:24
Public [8] - 47:6,
 150:9, 227:21,
 261:4, 345:5,
 411:19, 439:16,
 457:7
publically [2] - 114:7,
 263:11
publication [1] -
 153:18
publicity [1] - 280:5
published [4] -
 280:23, 340:25,
 368:12, 370:18
pulled [1] - 382:11
pumped [3] - 318:24,
 319:4, 319:12
punish [1] - 19:11
punished [4] - 9:14,
 9:16, 9:25, 45:22
punishment [2] - 46:4,
 336:21
puny [2] - 164:21,
 193:5
purely [2] - 32:23,
 415:10
purported [1] - 421:4
purporting [1] -
 424:21
purpose [12] - 81:8,
 105:7, 108:6, 153:3,
 156:19, 204:20,
 206:7, 253:5,
 270:19, 353:22,
 415:1, 443:23
purposefully [1] -
 325:8
purposely [1] - 35:9
purposes [2] - 108:4,

267:16
pursuant [3] - 263:19,
 272:3, 272:10
pursue [2] - 395:13,
 452:24
push [2] - 248:7,
 249:1
pushing [1] - 248:18
put [64] - 13:11, 13:22,
 14:8, 21:7, 30:8,
 42:8, 73:5, 83:18,
 115:24, 120:5,
 122:22, 122:23,
 161:21, 163:22,
 171:18, 186:17,
 192:1, 210:23,
 215:9, 246:17,
 246:20, 248:8,
 257:24, 265:3,
 273:19, 276:19,
 306:22, 319:1,
 338:17, 339:4,
 341:2, 349:20,
 352:11, 352:23,
 360:12, 372:18,
 375:20, 380:12,
 380:18, 380:19,
 380:24, 381:1,
 381:3, 381:9,
 381:16, 391:22,
 393:13, 397:22,
 407:8, 411:7, 425:4,
 425:12, 425:13,
 428:10, 429:12,
 429:13, 429:16,
 429:18, 430:20,
 431:14, 436:3,
 437:11, 443:23,
 445:24
puts [1] - 409:23
putting [7] - 26:4,
 38:11, 69:12, 76:21,
 182:8, 230:15, 381:6
puzzled [1] - 39:4
Pye [1] - 347:13

Q

QB [1] - 127:6
qualify [2] - 337:17,
 433:19
quality [1] - 154:8
quantified [1] - 357:3
quarrel [1] - 304:1
quarreling [4] - 219:9,
 219:22, 219:23,
 308:19
quarter [6] - 230:5,
 230:6, 230:8, 236:1,
 236:22, 382:17

quarterback [32] -
 12:10, 23:21, 23:23,
 49:5, 50:9, 75:15,
 79:21, 79:23, 80:1,
 80:4, 80:8, 80:19,
 80:23, 81:1, 81:5,
 81:8, 127:10,
 127:16, 127:19,
 127:23, 128:2,
 128:6, 128:7,
 128:11, 128:15,
 128:25, 129:7,
 246:2, 257:15,
 257:19, 273:13,
 332:22

quarterbacks [14] -
 12:3, 64:5, 64:9,
 64:13, 64:20, 65:15,
 65:22, 80:6, 80:7,
 119:23, 119:24,
 258:4, 258:9, 258:10

questioned [1] -
 300:12

questioning [2] -
 271:3, 395:10

questions [59] - 11:1,
 11:2, 13:17, 99:16,
 99:17, 100:2, 100:5,
 103:16, 108:25,
 112:16, 113:9,
 124:7, 124:9,
 124:13, 139:3,
 143:9, 143:17,
 143:23, 144:2,
 145:23, 189:1,
 200:5, 222:12,
 233:17, 242:14,
 242:16, 251:6,
 251:9, 252:12,
 253:8, 255:8,
 259:13, 266:4,
 266:6, 267:24,
 295:16, 314:9,
 318:3, 321:19,
 322:4, 323:23,
 326:18, 331:13,
 340:16, 341:3,
 342:16, 395:20,
 395:21, 402:11,
 406:1, 406:14,
 408:2, 411:14,
 427:15, 437:24,
 448:15, 453:25,
 454:18, 455:25

quibble [1] - 216:11
quick [1] - 99:25
quickly [5] - 49:10,
 53:19, 53:20, 98:10,
 443:10
quit [1] - 323:22

quite [9] - 39:4, 40:22,
 53:5, 211:9, 399:23,
 441:6, 445:7,
 445:25, 446:16
quote [11] - 162:13,
 172:3, 175:21,
 199:19, 200:1,
 208:12, 208:22,
 254:7, 254:8,
 262:18, 316:16
quoted [1] - 248:6
quotes [2] - 169:21,
 201:8
quoting [3] - 172:10,
 248:3, 264:15

R

rabbit [2] - 219:2,
 329:14
race [1] - 284:4
radar [1] - 115:6
radio [4] - 74:13,
 74:22, 74:25, 78:10
rained [2] - 70:8,
 76:19
raining [1] - 406:22
rainy [2] - 236:15,
 384:6
raise [5] - 135:23,
 136:22, 136:25,
 137:25, 138:18
raised [10] - 34:2,
 42:16, 73:19,
 103:16, 143:17,
 143:23, 144:2,
 145:19, 190:2,
 329:13
raises [1] - 28:2
ran [6] - 202:23,
 203:2, 349:23,
 359:4, 367:1, 382:25
randomly [2] - 118:12,
 119:16
range [17] - 115:22,
 116:6, 118:9,
 121:12, 152:10,
 153:16, 177:10,
 177:24, 185:16,
 185:17, 206:2,
 279:13, 355:21,
 357:22, 365:2,
 365:6, 365:9
ranges [4] - 169:16,
 177:11, 362:23,
 387:6
rapid [1] - 350:7
rate [1] - 351:17
rather [4] - 128:21,
 188:9, 395:22,

456:15
rating [1] - 135:3
raw [12] - 159:20,
 161:7, 161:13,
 223:14, 224:1,
 224:4, 224:14,
 225:8, 287:6,
 287:13, 287:17,
 289:16
Ray [1] - 27:1
RDR [2] - 1:23, 457:12
re [1] - 417:2
re-looked [1] - 417:2
reach [13] - 165:12,
 181:23, 182:5,
 185:15, 190:19,
 207:23, 208:14,
 215:23, 225:15,
 285:5, 309:4,
 323:17, 354:3
reached [25] - 66:8,
 182:22, 188:14,
 207:19, 211:17,
 280:9, 280:20,
 280:22, 315:22,
 315:23, 317:24,
 347:13, 354:6,
 354:10, 358:11,
 361:8, 363:17,
 366:13, 371:17,
 373:6, 416:14,
 427:13, 444:23,
 447:25, 448:9
reaching [2] - 194:11,
 317:8
react [8] - 56:13,
 58:15, 58:24,
 220:25, 248:23,
 249:1, 249:3, 249:6
reacted [1] - 72:20
reaction [15] - 51:17,
 52:11, 74:16,
 359:20, 359:23,
 361:17, 363:24,
 368:20, 370:7,
 370:22, 414:20,
 445:20, 446:8,
 447:4, 447:5
reactions [2] - 371:22,
 422:14
read [49] - 41:10, 96:6,
 114:5, 123:25,
 135:25, 136:9,
 136:14, 149:9,
 173:15, 184:21,
 197:1, 201:7,
 201:11, 201:23,
 202:6, 202:8,
 208:17, 210:12,
 215:8, 218:15,

219:5, 243:23,
 244:9, 244:15,
 244:16, 244:23,
 244:24, 270:13,
 294:10, 296:3,
 296:11, 296:14,
 316:5, 316:6,
 348:25, 355:17,
 357:20, 370:11,
 377:17, 388:24,
 409:4, 409:12,
 410:4, 426:13,
 426:14, 426:18,
 426:19
reader [1] - 264:22
readers [2] - 325:8,
 430:11
Reading [3] - 172:8,
 356:18, 357:22
reading [26] - 27:23,
 114:6, 186:21,
 189:23, 204:12,
 204:25, 205:6,
 206:13, 207:6,
 208:20, 210:7,
 211:3, 218:19,
 224:25, 244:20,
 245:4, 246:6,
 248:22, 295:2,
 364:13, 374:24,
 388:25, 390:1,
 408:6, 409:13
readings [7] - 184:24,
 185:1, 185:2, 185:8,
 185:10, 185:24,
 237:14
reads [14] - 162:3,
 162:4, 184:21,
 200:16, 216:21,
 294:9, 294:11,
 294:20, 294:22,
 302:19, 316:2,
 327:5, 334:6, 377:14
ready [6] - 7:10,
 128:16, 128:18,
 130:14, 313:2,
 373:11
real [6] - 152:10,
 211:6, 337:25,
 340:8, 433:19,
 433:23
real-world [1] - 433:23
realistic [5] - 206:3,
 391:1, 408:12,
 409:10, 409:22
realities [1] - 363:12
realize [1] - 164:21
realized [1] - 443:7
really [57] - 9:20,
 12:16, 20:22, 37:19,

44:2, 49:6, 50:6,
50:7, 53:8, 54:22,
56:25, 59:21, 69:6,
73:16, 74:5, 84:5,
109:9, 118:16,
120:10, 120:13,
120:16, 122:10,
134:16, 135:14,
156:1, 163:21,
164:21, 165:19,
171:13, 192:8,
209:18, 217:9,
223:12, 283:16,
291:3, 291:7, 291:8,
291:11, 293:1,
297:23, 309:13,
316:3, 329:22,
338:24, 356:3,
360:2, 393:16,
399:10, 417:13,
418:21, 421:5,
422:22, 424:24,
438:18, 444:9,
449:22
Realtime [1] - 457:13
reanalyze [1] - 421:12
rear [1] - 251:19
reargue [1] - 27:17
rearranged [1] -
157:15
reason [41] - 10:1,
10:2, 14:17, 16:14,
46:11, 56:7, 97:19,
107:12, 109:9,
110:23, 114:25,
118:7, 125:7, 126:8,
126:22, 128:12,
131:15, 132:14,
134:9, 176:1, 176:4,
237:11, 242:15,
278:6, 285:13,
305:3, 318:13,
335:16, 336:10,
360:20, 361:1,
369:2, 415:8,
423:15, 430:20,
431:13, 437:13,
446:12, 451:17,
453:23, 454:4
reasonable [17] -
29:14, 31:16, 34:5,
37:10, 38:22, 66:9,
66:15, 210:7, 297:1,
303:25, 317:16,
317:18, 318:1,
325:1, 325:10,
433:14, 456:8
reasonably [2] -
35:17, 36:12
reasons [4] - 21:17,

88:21, 200:24, 421:1
rebuttal [2] - 30:10,
330:13
recalculate [1] - 222:3
recalibrated [1] -
374:13
receive [4] - 103:7,
196:18, 196:22,
265:15
received [11] - 100:17,
103:3, 104:4,
104:17, 107:18,
109:1, 230:7,
260:13, 335:11,
347:6, 348:23
receiver [1] - 53:8
receivers [2] - 26:4,
53:7
receivers' [1] - 396:12
receiving [2] - 8:1,
53:6
Recess [6] - 100:1,
149:3, 194:19,
260:24, 345:1,
395:25
recognize [5] - 25:16,
184:20, 237:17,
298:14, 298:17
recognized [3] -
315:18, 328:1,
452:20
recognizing [3] -
182:16, 406:21,
456:21
recollect [2] - 299:19,
339:17
recollection [27] -
67:7, 139:21, 186:7,
201:1, 225:5,
253:17, 253:21,
259:22, 259:23,
292:4, 292:8,
297:15, 299:23,
300:18, 302:22,
303:12, 303:18,
305:18, 305:23,
308:7, 308:12,
313:10, 319:6,
320:16, 332:7,
332:11, 335:3
recollections [3] -
289:14, 289:19,
289:22
recommend [1] -
281:17
recommendation [2] -
243:19, 281:13
recommendations [2]
- 243:17, 244:19
recommended [1] -

281:5
reconcile [1] - 358:4
reconsider [4] -
335:23, 336:4,
336:7, 339:8
reconsidered [1] -
336:9
reconstructing [1] -
450:2
record [44] - 6:7, 6:10,
7:6, 21:9, 35:13,
42:8, 47:12, 97:24,
98:21, 149:4,
150:15, 189:17,
189:18, 192:2,
215:9, 216:17,
226:8, 228:2,
231:16, 232:17,
233:3, 233:8,
234:24, 235:5,
235:11, 235:14,
237:9, 261:10,
271:8, 311:7,
318:25, 338:19,
340:6, 340:10,
340:11, 343:22,
343:25, 345:10,
357:21, 411:25,
413:21, 415:17,
439:22, 456:17
record-keeping [2] -
340:10, 340:11
recorded [12] - 18:20,
191:23, 235:2,
235:9, 235:17,
288:18, 288:23,
375:14, 409:6,
413:20, 415:23,
429:15
recording [1] - 231:23
records [14] - 39:19,
43:22, 44:10, 76:1,
89:12, 104:8,
104:15, 110:25,
139:16, 140:13,
313:7, 319:1,
331:15, 340:5
recreate [1] - 352:21
RECROSS [3] -
143:12, 259:15,
408:4
Recross [2] - 5:14,
5:21
RECROSS-
EXAMINATION [3] -
143:12, 259:15,
408:4
recruited [1] - 347:8
recuse [1] - 8:4
red [4] - 299:11,

403:18, 405:3, 405:4
reddish [1] - 405:3
REDIRECT [6] - 139:4,
255:9, 340:19,
402:20, 438:3,
454:20
redirect [2] - 112:16,
139:3
Redirect [2] - 5:14,
5:21
redo [1] - 419:1
redraft [1] - 332:13
reduce [1] - 93:25
reduced [1] - 224:10
reduction [3] - 199:24,
238:15, 327:19
ref [4] - 114:22,
123:15, 217:11,
217:24
refer [17] - 56:23,
61:24, 64:18, 78:3,
79:14, 79:18, 94:15,
169:8, 172:19,
177:17, 198:18,
203:12, 208:7,
209:6, 209:7, 212:5,
440:14
referee [17] - 18:4,
119:7, 119:10,
119:11, 122:12,
122:17, 215:25,
217:3, 218:6,
232:23, 232:24,
364:8, 376:5,
377:20, 399:6,
401:1, 402:5
referees [34] - 59:2,
59:19, 63:19, 73:5,
73:20, 82:3, 97:10,
119:1, 119:6,
121:22, 121:24,
122:8, 122:13,
122:15, 231:15,
231:18, 237:7,
276:17, 276:18,
308:8, 308:22,
314:18, 376:1,
386:17, 386:21,
398:15, 398:20,
399:19, 399:22,
399:24, 400:3,
400:5, 400:7
referees' [3] - 93:9,
122:2, 228:18
reference [14] - 63:12,
93:18, 102:4, 125:1,
125:24, 129:13,
130:20, 139:11,
164:10, 175:15,
240:24, 316:25,

333:11, 397:6
referenced [8] -
111:14, 132:22,
134:10, 134:13,
134:24, 135:6,
145:12, 203:4
references [1] -
130:23
referred [13] - 69:3,
100:18, 100:23,
126:23, 157:18,
166:13, 173:16,
211:18, 211:23,
324:2, 352:7,
371:20, 426:10
referring [20] - 78:23,
95:2, 101:7, 105:18,
112:1, 112:24,
113:5, 133:22,
135:1, 136:3,
197:19, 198:19,
202:20, 205:21,
247:10, 359:15,
404:24, 430:3,
440:15
refers [11] - 102:8,
102:12, 102:18,
105:10, 132:9,
135:8, 259:5, 259:7,
259:11, 260:4,
409:16
reflect [3] - 105:24,
140:14, 427:7
reflected [3] - 140:16,
198:9, 215:2
refresh [4] - 67:7,
201:1, 225:5, 253:16
refs [4] - 92:21,
121:14, 216:8, 308:9
refusal [3] - 11:8,
38:18, 304:13
refuse [2] - 89:21,
341:3
refused [1] - 44:25
refusing [1] - 45:4
regard [2] - 417:9,
426:6
regarding [19] - 8:7,
11:22, 26:21, 29:1,
31:13, 48:12, 64:6,
66:11, 99:8, 114:1,
114:5, 123:14,
234:7, 247:4,
248:21, 249:20,
250:14, 337:8,
371:25
regardless [5] - 66:14,
200:22, 332:25,
333:1, 333:2
register [1] - 378:22

<p>Registered [1] - 457:13</p> <p>registered [2] - 13:1, 115:6</p> <p>regression [6] - 370:25, 371:5, 371:11, 380:11, 423:8, 429:23</p> <p>regular [1] - 88:18</p> <p>regulation [2] - 249:6, 318:24</p> <p>regulations [2] - 282:21, 334:13</p> <p>reinflated [2] - 176:16, 289:5</p> <p>reinflating [1] - 235:13</p> <p>reinflation [5] - 176:23, 193:14, 381:8, 381:10, 381:18</p> <p>REISNER [42] - 3:17, 100:4, 100:7, 104:6, 105:13, 136:2, 136:16, 136:20, 138:25, 143:10, 143:13, 145:21, 192:13, 194:17, 194:21, 198:23, 222:1, 225:17, 345:2, 345:8, 373:8, 402:19, 402:21, 408:1, 409:7, 409:12, 409:16, 411:15, 411:17, 411:23, 427:15, 438:1, 438:4, 439:9, 439:11, 439:13, 439:20, 448:11, 450:9, 454:19, 454:21, 455:23</p> <p>Reisner [9] - 270:4, 270:6, 270:10, 270:15, 279:15, 280:13, 281:3, 324:12, 329:22</p> <p>reject [4] - 178:4, 303:11, 303:14, 304:12</p> <p>rejected [14] - 8:5, 295:9, 304:5, 304:9, 304:11, 306:4, 306:5, 306:6, 306:8, 306:13, 306:14, 307:23, 307:24</p> <p>rejecting [2] - 303:15, 306:20</p> <p>rejection [1] - 308:14</p> <p>related [2] - 101:3, 369:21</p> <p>relates [1] - 91:21</p>	<p>Relations [1] - 2:17</p> <p>relationship [4] - 83:2, 135:20, 138:5, 140:1</p> <p>relationships [1] - 13:25</p> <p>relative [7] - 161:12, 163:16, 191:1, 193:12, 351:1, 356:22, 393:5</p> <p>relatively [6] - 181:1, 182:18, 182:20, 218:15, 435:5, 435:22</p> <p>release [5] - 261:25, 262:17, 264:1, 273:16, 344:6</p> <p>released [1] - 261:24</p> <p>relevance [1] - 278:24</p> <p>relevancy [1] - 293:1</p> <p>relevant [20] - 11:3, 39:14, 39:19, 43:24, 100:19, 139:15, 159:16, 183:22, 206:25, 220:8, 220:15, 271:5, 279:3, 323:2, 332:3, 335:24, 432:23, 434:14, 441:5, 441:6</p> <p>reliability [1] - 190:12</p> <p>reliable [22] - 17:24, 158:5, 158:16, 164:24, 194:8, 194:13, 282:9, 285:14, 285:16, 285:18, 286:5, 301:23, 316:13, 316:18, 350:3, 393:21, 393:24, 394:22, 395:1, 435:24, 436:7, 436:12</p> <p>reliably [2] - 355:12, 355:17</p> <p>relied [4] - 8:18, 37:22, 243:8, 308:6</p> <p>rely [9] - 29:9, 31:2, 31:3, 110:6, 208:13, 208:15, 225:8, 285:4, 336:1</p> <p>relying [5] - 8:23, 85:4, 85:6, 224:14, 224:15</p> <p>remaining [2] - 229:15, 301:16</p> <p>remains [4] - 176:18, 300:24, 372:3, 420:6</p> <p>remember [54] - 12:1, 26:25, 44:24, 45:3, 68:9, 70:9, 78:11, 80:16, 80:17, 81:18,</p>	<p>81:20, 87:14, 93:13, 93:22, 96:5, 99:15, 101:5, 107:4, 109:16, 109:24, 110:3, 110:4, 110:11, 111:4, 114:6, 115:15, 118:15, 118:16, 120:1, 121:7, 124:5, 126:13, 127:14, 127:20, 128:4, 128:16, 130:11, 132:4, 132:23, 134:14, 191:16, 193:10, 209:25, 253:2, 253:13, 287:17, 303:21, 312:25, 381:13, 387:5, 415:2, 418:8, 433:19, 452:17</p> <p>remove [1] - 425:20</p> <p>render [3] - 286:4, 323:3, 324:7</p> <p>renders [2] - 324:8, 425:24</p> <p>renovation [1] - 129:6</p> <p>renovations [1] - 128:5</p> <p>reorganize [1] - 160:22</p> <p>rep [1] - 252:1</p> <p>repeat [2] - 371:1, 371:3</p> <p>repeated [4] - 336:11, 336:15, 350:7, 351:8</p> <p>repeatedly [3] - 355:18, 377:14, 426:22</p> <p>replicate [10] - 173:23, 396:18, 410:25, 417:14, 419:12, 419:13, 423:4, 423:10, 424:18, 432:6</p> <p>replicated [3] - 158:13, 359:5, 424:16</p> <p>REPLY [1] - 5:7</p> <p>report [313] - 8:19, 8:25, 10:3, 10:7, 11:6, 15:5, 16:5, 17:6, 17:7, 25:21, 30:6, 30:7, 30:9, 30:14, 30:17, 31:3, 32:1, 32:7, 32:17, 32:22, 32:24, 33:11, 34:9, 34:12, 34:15, 34:24, 35:5, 36:16, 36:24, 37:2, 37:14, 37:16, 37:25, 38:3,</p>	<p>38:16, 39:8, 40:10, 40:25, 41:10, 41:18, 41:21, 41:22, 41:25, 42:9, 43:4, 44:7, 48:16, 52:9, 61:19, 62:2, 62:5, 62:16, 64:4, 66:6, 78:6, 79:18, 81:22, 83:4, 84:11, 84:12, 89:5, 91:12, 91:25, 94:9, 94:13, 97:18, 97:23, 111:14, 123:17, 123:18, 123:21, 123:25, 124:4, 124:12, 124:13, 124:23, 126:3, 126:16, 129:11, 131:9, 131:16, 131:23, 134:2, 134:10, 134:13, 134:25, 135:5, 135:7, 135:13, 136:1, 136:9, 136:14, 136:19, 136:20, 137:25, 138:7, 138:22, 140:12, 140:17, 144:8, 159:24, 162:14, 162:25, 166:20, 169:6, 173:11, 173:15, 176:16, 177:9, 177:10, 182:2, 184:24, 188:6, 188:20, 189:23, 191:10, 197:2, 198:24, 199:1, 199:13, 199:17, 200:12, 200:15, 201:7, 201:23, 202:6, 202:8, 202:21, 202:25, 204:6, 204:12, 204:25, 205:6, 205:17, 205:20, 206:19, 208:10, 208:21, 209:11, 209:20, 209:21, 211:4, 214:9, 214:13, 214:14, 218:25, 222:20, 224:13, 224:19, 225:7, 229:3, 242:24, 243:7, 243:13, 243:20, 244:3, 244:9, 244:10, 244:11, 244:16, 244:21, 245:4, 246:23, 247:2, 247:10, 247:23, 247:24,</p>	<p>248:3, 250:19, 260:12, 262:16, 262:23, 262:25, 263:4, 263:23, 264:23, 265:4, 265:5, 265:15, 265:17, 266:3, 267:4, 267:19, 268:1, 268:8, 269:10, 269:16, 269:23, 270:13, 272:2, 272:12, 272:25, 273:9, 273:22, 274:1, 274:4, 274:12, 274:21, 275:21, 276:18, 277:10, 278:22, 279:10, 285:16, 290:7, 291:10, 291:25, 293:18, 294:15, 300:3, 300:17, 300:20, 301:6, 301:8, 302:6, 302:7, 302:14, 302:16, 302:19, 303:8, 303:9, 308:12, 308:13, 308:20, 309:17, 315:5, 316:14, 318:9, 319:4, 319:8, 319:9, 319:10, 319:19, 319:20, 320:2, 320:23, 324:10, 324:11, 325:21, 325:25, 326:11, 326:22, 330:2, 330:4, 330:5, 330:9, 330:18, 330:19, 331:2, 340:22, 341:1, 350:13, 350:16, 353:8, 354:12, 359:13, 360:12, 368:11, 368:12, 368:14, 368:23, 369:25, 370:12, 370:18, 370:19, 370:25, 371:15, 371:20, 371:23, 373:3, 374:2, 374:6, 391:22, 392:12, 392:22, 397:7, 402:23, 409:1, 411:7, 411:12, 421:25, 422:21, 422:23, 423:5, 423:12, 426:3, 426:5, 427:9, 427:10, 428:1, 429:7, 442:7,</p>
--	--	--	--	--

444:11, 444:15,
444:16, 444:23,
445:3, 448:3,
448:23, 450:1,
451:13, 451:17,
451:18, 454:24,
454:25, 455:1,
455:16
REPORTED [1] - 1:22
reported [10] - 92:6,
198:3, 224:12,
411:3, 411:5,
417:15, 418:23,
419:13, 420:12,
427:9
Reporter [2] - 457:13,
457:13
reporter [2] - 6:6, 7:7
reporting [2] - 166:8,
166:12
reports [17] - 243:24,
244:7, 244:14,
320:14, 320:15,
321:1, 321:13,
321:16, 330:22,
330:24, 330:25,
331:5, 331:6, 411:4,
422:16, 448:3, 448:7
represent [9] - 62:15,
92:5, 107:10, 154:3,
236:5, 247:21,
284:8, 323:6, 333:6
representation [2] -
287:22, 323:9
representative [2] -
245:18, 393:18
representatives [2] -
313:6, 336:24
represented [5] -
110:20, 267:4,
271:11, 314:2, 314:4
representing [2] -
270:7, 270:16
represents [2] - 256:4,
256:5
reproduce [2] - 371:9,
423:6
reputation [1] -
312:18
request [29] - 84:23,
85:2, 85:8, 85:13,
87:24, 109:4, 109:8,
109:14, 109:17,
110:8, 261:22,
305:11, 311:8,
313:18, 331:22,
333:11, 333:21,
333:24, 335:11,
335:12, 335:20,
335:23, 335:25,

336:4, 336:11,
336:17, 337:13,
342:1, 410:5
requested [4] -
149:21, 304:14,
336:2, 339:11
requesting [1] -
333:21
requests [7] - 101:2,
113:1, 113:7, 313:6,
331:14, 332:2,
337:12
require [3] - 113:14,
218:2, 311:13
required [3] - 149:6,
233:21, 367:22
requirement [1] -
239:21
requirements [3] -
65:6, 239:20, 240:12
requires [1] - 438:6
research [2] - 440:18,
441:1
researcher [3] - 17:2,
158:2, 186:22
resend [1] - 341:17
reserve [1] - 20:11
reset [1] - 91:7
resist [2] - 219:12,
455:24
resolve [1] - 302:17
resolving [1] - 456:12
resources [3] - 282:3,
282:14, 283:9
respect [68] - 8:25,
18:17, 20:7, 44:14,
45:6, 100:11,
113:10, 179:12,
223:25, 233:1,
242:23, 250:17,
261:19, 261:21,
262:15, 267:2,
267:9, 267:18,
269:18, 273:4,
273:7, 273:19,
311:8, 314:6,
318:22, 322:13,
322:16, 326:4,
330:21, 334:10,
337:3, 341:10,
348:9, 353:6,
355:24, 356:1,
356:16, 356:25,
359:13, 361:5,
361:7, 363:14,
363:16, 366:11,
367:14, 367:19,
368:1, 368:14,
371:16, 372:8,
373:4, 380:8, 404:7,

405:12, 405:15,
406:15, 406:25,
407:12, 408:7,
412:24, 416:12,
422:12, 441:9,
443:20, 447:24,
448:7, 449:6
respected [3] - 16:2,
280:10, 330:7
respectful [1] - 305:5
respectfully [6] -
305:4, 305:5,
305:10, 333:24,
335:13, 336:9
respects [1] - 414:25
respond [5] - 42:15,
86:10, 334:21,
335:19, 438:10
responded [1] - 85:3
response [16] - 6:12,
42:25, 335:10,
341:19, 359:20,
359:23, 361:17,
363:24, 368:20,
370:7, 370:22,
414:20, 426:3,
445:20, 446:8, 447:5
responses [3] -
371:21, 404:10,
422:14
responsibilities [7] -
123:5, 123:14,
137:20, 154:1,
154:2, 154:12, 228:9
responsibility [6] -
31:22, 145:3, 145:8,
154:10, 228:11,
413:3
responsible [15] -
10:10, 11:21, 21:23,
40:14, 46:9, 46:16,
49:21, 69:5, 134:20,
154:4, 154:7, 202:5,
228:23, 229:6,
345:18
responsive [4] -
112:25, 113:6,
304:14, 336:3
rest [2] - 24:18, 454:12
restriction [1] - 211:2
Result [1] - 139:14
result [18] - 17:14,
17:20, 17:24, 18:19,
168:22, 176:5,
193:20, 201:10,
202:13, 202:17,
203:3, 210:9,
287:11, 317:4,
403:10, 411:3,
445:9, 446:12

results [46] - 158:5,
158:16, 162:19,
165:9, 166:8,
166:21, 167:4,
167:6, 173:12,
179:19, 182:9,
187:16, 188:11,
191:15, 191:16,
191:17, 205:18,
209:23, 210:4,
211:22, 212:5,
212:7, 358:5,
364:21, 371:9,
373:23, 388:13,
389:5, 390:5,
392:19, 393:16,
403:3, 403:13,
408:13, 409:6,
409:11, 420:9,
423:4, 423:6,
424:16, 424:18,
425:25, 431:19,
431:25, 432:3,
442:17
retain [1] - 189:20
retained [12] - 33:12,
33:17, 33:19,
156:23, 263:12,
279:25, 280:4,
312:24, 322:7,
322:24, 327:5, 349:1
retaining [1] - 279:23
return [1] - 370:5
reveal [1] - 265:10
revealing [1] - 206:14
reverse [1] - 388:17
reversed [2] - 45:6,
160:25
review [19] - 102:2,
102:9, 102:18,
104:21, 107:16,
110:7, 113:4,
209:19, 245:3,
330:24, 332:1,
349:9, 352:19,
363:4, 368:11,
422:10, 444:11,
444:14, 448:2
reviewed [8] - 29:23,
103:3, 112:23,
113:2, 249:22,
269:25, 331:5,
437:11
reviewing [3] - 348:2,
371:14, 448:6
revised [1] - 161:22
rewet [1] - 383:17
rewetting [1] - 383:14
Rice [3] - 27:1, 36:6,
36:7

rid [9] - 43:13, 87:9,
87:22, 87:25, 88:5,
88:9, 88:19, 90:14,
91:5
ridiculous [1] - 74:19
RIFKIND [1] - 3:15
Rifkind [1] - 263:13
right-hand [3] -
160:23, 240:5,
405:16
rightly [1] - 340:4
rigorous [3] - 49:8,
52:21, 70:17
rise [5] - 292:21,
446:16, 449:18,
450:13
Risk [1] - 412:23
Rita [1] - 307:5
Riveron [3] - 251:20,
319:25, 320:11
road [1] - 268:14
Rob [1] - 121:6
ROBERT [2] - 4:14,
5:22
Robert [6] - 13:19,
14:5, 149:7, 225:24,
345:2, 345:11
Robinson [2] - 24:5,
250:3
Robyn [1] - 300:8
robyn [2] - 300:16,
306:18
Rodgers [10] - 248:3,
248:6, 248:14,
248:17, 249:1,
249:8, 254:4,
254:12, 254:17,
254:24
ROGER [2] - 1:19, 2:4
role [25] - 27:16,
123:20, 164:18,
265:25, 267:11,
268:7, 301:10,
303:10, 310:4,
322:2, 322:23,
323:19, 326:12,
326:13, 334:11,
345:18, 347:23,
348:8, 348:19,
412:24, 413:7,
441:9, 442:13, 443:2
Roman [5] - 124:24,
200:15, 300:22,
327:4, 350:15
Ron [1] - 24:13
room [92] - 17:12,
18:22, 19:3, 19:5,
22:25, 23:1, 34:14,
72:3, 79:21, 79:23,
80:1, 80:4, 80:8,

80:19, 80:23, 81:1, 81:5, 81:8, 82:3, 83:12, 84:4, 93:10, 100:3, 120:11, 122:1, 122:5, 122:15, 123:7, 123:20, 127:6, 127:10, 127:16, 127:19, 127:23, 128:2, 128:6, 128:7, 128:8, 128:11, 128:15, 128:25, 129:7, 140:3, 170:7, 170:13, 171:12, 171:16, 171:22, 172:12, 172:14, 172:24, 172:25, 184:9, 189:16, 220:18, 229:19, 230:11, 231:16, 233:9, 234:24, 235:3, 251:18, 251:19, 276:13, 276:21, 290:18, 290:25, 291:5, 291:6, 292:14, 292:18, 292:20, 307:19, 308:10, 314:22, 352:24, 358:2, 365:3, 383:21, 387:17, 388:13, 389:4, 390:5, 390:25, 391:2, 393:8, 394:7, 401:9, 406:8, 408:11, 409:10, 409:21 rooms [2] - 307:10, 353:1 root [1] - 346:14 roughly [5] - 67:5, 173:2, 342:10, 418:10, 441:25 round [2] - 12:17, 120:10 rounded [1] - 364:11 rounding [1] - 175:18 rounds [1] - 351:3 route [2] - 281:8, 281:23 routine [6] - 108:10, 233:21, 233:23, 234:11, 307:19, 309:2 routinely [2] - 308:17, 308:20 row [1] - 160:14 Royer [1] - 155:15 rub [5] - 53:8, 353:3, 396:12, 401:9, 402:2	rubbed [2] - 401:16, 402:3 rubbing [14] - 328:12, 397:19, 397:24, 399:2, 399:12, 399:25, 400:1, 400:2, 400:11, 400:13, 400:14, 400:21, 400:22, 401:6 rule [28] - 18:8, 23:17, 25:21, 26:23, 27:4, 35:19, 36:20, 58:18, 59:8, 61:8, 63:19, 64:4, 64:6, 64:22, 65:11, 65:15, 66:13, 66:16, 66:18, 113:10, 113:21, 115:11, 115:18, 119:12, 122:20, 122:21, 329:19 ruled [9] - 27:16, 27:20, 242:13, 296:24, 308:20, 309:11, 321:15, 329:17 Rules [1] - 99:10 rules [26] - 22:17, 33:16, 35:2, 35:8, 35:11, 35:21, 36:16, 41:9, 59:24, 66:11, 113:13, 114:1, 114:4, 114:5, 164:8, 164:10, 218:1, 218:8, 227:3, 248:21, 252:16, 271:19, 271:21, 272:5, 323:12, 325:13 ruling [13] - 242:9, 242:11, 242:17, 242:18, 242:20, 265:23, 266:1, 301:11, 303:3, 303:4, 315:22, 324:5, 325:14 rulings [1] - 324:10 run [7] - 88:9, 262:11, 262:20, 283:21, 301:24, 332:18 running [4] - 262:19, 283:19, 338:6, 395:17 runs [1] - 156:17 rushed [1] - 391:8 Ryan [2] - 229:18, 230:10	S sample [5] - 176:2, 182:19, 419:8, 435:17, 439:3 samples [2] - 18:13 San [1] - 412:15 sanctuary [1] - 80:2 sand [1] - 53:11 sandpaper [1] - 53:2 sat [3] - 172:14, 311:17, 313:15 satisfied [1] - 288:12 satisfy [1] - 110:8 saturation [1] - 382:22 Saturday [4] - 133:15, 146:12, 147:1, 333:19 sauna [2] - 120:6, 120:8 save [1] - 343:7 saw [28] - 124:5, 135:12, 136:8, 136:17, 137:10, 137:22, 138:15, 138:21, 192:23, 240:20, 270:9, 289:15, 295:3, 295:4, 357:12, 360:8, 362:15, 362:25, 374:11, 380:13, 402:5, 406:18, 413:21, 415:14, 446:22, 449:10 saying-based [1] - 166:17 scale [8] - 294:12, 294:19, 294:20, 294:21, 294:22, 294:23 scales [1] - 294:20 Scenario [5] - 161:11, 161:12, 162:6, 162:8, 199:21 scenario [1] - 162:10 scenarios [9] - 17:17, 166:10, 367:10, 369:14, 369:15, 413:24, 413:25, 414:1, 429:3 schedule [4] - 172:19, 281:19, 281:20, 456:8 scheduled [1] - 281:18 schedules [1] - 171:19 Schoenfeld [10] - 44:6, 59:7, 60:15,	63:18, 119:3, 145:3, 145:6, 310:21, 333:2, 337:20 scholarship [1] - 151:8 School [3] - 15:23, 150:18, 151:5 school [7] - 16:1, 151:4, 153:25, 154:6, 154:7, 154:11, 154:13 Schultz [1] - 150:25 Science [2] - 346:21, 346:23 science [18] - 155:6, 156:24, 165:2, 165:3, 238:18, 284:13, 303:22, 316:21, 317:4, 317:7, 317:20, 327:11, 329:19, 330:9, 330:11, 449:3, 452:23 Sciences [1] - 412:4 scientific [38] - 41:25, 156:21, 156:25, 157:6, 157:9, 158:11, 159:16, 165:14, 169:7, 172:21, 173:25, 182:12, 182:15, 183:13, 183:23, 184:11, 185:19, 194:10, 220:8, 285:5, 285:9, 285:15, 286:6, 286:8, 303:1, 316:11, 316:15, 317:16, 317:18, 327:6, 345:21, 345:23, 346:4, 346:10, 348:21, 349:1, 452:19, 452:21 scientifically [1] - 159:14 scientist [2] - 347:19, 412:3 scientists [3] - 284:20, 302:25, 330:11 score [1] - 165:25 screen [1] - 88:13 screens [1] - 153:19 se [1] - 441:7 Seahawks [1] - 81:3 sealed [1] - 384:21 search [10] - 101:6, 101:10, 139:15, 149:18, 149:20,	312:21, 332:18, 333:2, 333:22, 337:22 searches [2] - 336:2, 337:18 season [11] - 24:18, 76:11, 77:4, 113:21, 124:3, 129:8, 133:2, 133:9, 135:8, 245:23, 401:8 season's [1] - 334:8 seasons [1] - 47:20 seated [1] - 270:4 Seattle [1] - 128:17 sec [2] - 129:18, 134:1 second [53] - 13:10, 14:13, 16:4, 16:11, 22:7, 29:4, 33:19, 73:11, 73:15, 73:18, 74:4, 102:18, 126:2, 130:5, 130:14, 131:20, 139:11, 149:16, 164:1, 168:5, 169:18, 176:8, 176:15, 179:24, 200:15, 205:21, 224:24, 226:12, 229:16, 230:3, 230:5, 230:6, 230:8, 236:1, 236:22, 238:20, 263:10, 273:10, 300:20, 300:23, 319:16, 332:22, 337:9, 349:25, 352:18, 374:11, 381:9, 382:16, 397:6, 400:6, 432:10, 438:14, 449:6 second-team [1] - 332:22 second-to-last [1] - 200:15 secondarily [1] - 319:21 secondly [2] - 159:3, 223:8 seconds [23] - 125:5, 126:5, 126:12, 129:22, 129:24, 130:22, 131:1, 131:2, 131:12, 131:25, 132:20, 134:5, 134:6, 236:20, 236:22, 390:14, 410:8, 410:16, 410:19, 411:1, 411:11, 418:10
---	--	--	--	---

secret [1] - 80:2	344:13, 344:23,	280:13, 329:12,	352:18, 353:11,	showed [7] - 85:16,
section [2] - 98:16,	351:6, 351:14,	332:13, 333:20,	355:10, 361:25,	115:17, 302:23,
354:11	352:15, 353:13,	334:23, 337:5, 338:7	369:15, 371:22,	352:15, 380:22,
security [4] - 88:21,	353:16, 355:7,	sentence [19] -	374:19, 374:21,	381:24, 382:11
237:23, 251:25,	360:3, 360:24,	205:21, 224:20,	378:8, 399:16,	shower [1] - 365:3
307:7	361:1, 367:2,	224:25, 239:19,	400:10, 414:3,	showing [4] - 172:17,
see [153] - 6:6, 11:17,	373:20, 381:2,	264:11, 264:12,	436:14, 436:15,	174:11, 226:23,
19:20, 30:11, 39:5,	383:3, 396:5,	264:15, 264:16,	437:9, 444:15,	403:1
45:17, 62:11, 62:13,	397:25, 408:14,	265:3, 331:25,	444:23, 450:8,	shown [2] - 138:12,
62:20, 62:22, 62:25,	410:23, 414:7,	356:15, 388:25,	453:1, 453:16	139:6
72:5, 90:18, 92:8,	415:17, 420:9,	408:22, 408:23,	set-up [1] - 353:11	shows [12] - 15:4,
92:14, 92:23, 93:18,	421:11, 442:11,	409:1, 409:12,	sets [9] - 189:10,	16:6, 17:1, 43:23,
98:11, 98:18, 99:1,	449:17, 449:18,	409:16, 410:4	193:1, 332:14,	91:1, 158:18,
99:2, 99:5, 99:11,	449:19, 452:23,	sentences [1] - 183:4	435:24, 435:25,	169:24, 329:19,
102:4, 102:15,	453:4, 453:6, 454:9,	separate [3] - 196:21,	436:6, 436:7,	367:2, 397:14,
103:1, 104:14,	456:23	211:18, 300:21	436:24, 446:21	403:22, 453:7
105:22, 111:15,	seeing [9] - 88:14,	separately [4] - 197:8,	setting [4] - 194:4,	sic [2] - 229:16, 249:5
123:17, 123:21,	253:14, 253:15,	282:3, 419:6, 419:7	283:12, 293:10,	side [13] - 20:19,
124:3, 124:24,	265:18, 328:12,	September [1] -	398:14	100:3, 204:3, 204:5,
126:6, 126:20,	328:13, 356:2,	333:23	seven [9] - 134:6,	204:6, 210:22,
127:7, 128:21,	415:9, 422:6	sequence [12] - 160:6,	177:2, 177:21,	211:8, 216:10,
129:19, 129:25,	seeking [1] - 110:2	160:7, 168:2, 168:3,	179:6, 196:4,	240:5, 317:14,
130:6, 130:19,	select [4] - 50:4, 50:5,	168:6, 176:11,	196:12, 196:14,	317:17, 347:18,
131:13, 131:21,	72:23, 77:13	176:13, 177:21,	229:15, 257:5	403:22
132:12, 134:7,	selected [2] - 67:15,	180:7, 187:21,	seven-and-a-half-	sideline [6] - 191:10,
139:14, 139:17,	155:18	417:4, 421:24	minute [1] - 177:2	230:15, 246:14,
140:4, 140:21,	selecting [2] - 50:23,	sequences [2] -	several [3] - 172:14,	257:9, 257:14, 260:7
158:3, 159:21,	68:9	177:11, 180:8	239:2, 414:25	sidelines [2] - 230:13,
159:25, 160:13,	selection [2] - 67:16,	sequencing [2] -	sexting [1] - 44:24	247:7
160:22, 164:19,	67:23	190:25, 206:4	sexual [1] - 322:18	sigma [1] - 408:25
165:4, 165:5,	selects [1] - 48:20	sequential [2] -	shape [1] - 331:8	sign [5] - 22:17, 83:10,
165:14, 166:12,	send [1] - 103:7	327:23, 439:6	share [1] - 443:14	83:15, 83:20, 83:25
171:14, 173:16,	sending [1] - 78:18	sequentially [1] -	shared [3] - 320:25,	signature [2] - 239:4,
175:13, 177:3,	Senior [3] - 2:7, 2:17,	438:21	321:7, 321:10	240:2
178:5, 178:20,	151:5	series [4] - 197:9,	sheet [3] - 59:20,	signed [14] - 64:20,
181:6, 188:6, 188:7,	senior [2] - 228:22,	350:6, 357:2, 388:4	59:24, 119:4	65:23, 65:24, 83:17,
188:9, 188:10,	229:6	serious [6] - 28:21,	shift [4] - 179:19,	83:22, 84:3, 84:13,
192:3, 192:4,	sense [19] - 57:1,	40:12, 42:11, 45:11,	417:21, 454:8, 454:9	239:2, 239:6, 240:1,
200:10, 201:3,	73:12, 191:25,	249:3	shifting [1] - 438:18	258:15, 259:1,
201:24, 202:5,	192:15, 192:20,	served [3] - 153:6,	shock [1] - 280:17	259:3, 299:22
207:5, 224:22,	275:13, 288:7,	167:24, 348:13	shocked [1] - 285:1	significance [60] -
226:12, 227:13,	360:4, 364:22,	service [1] - 107:23	shoes [3] - 83:11,	81:2, 164:17,
227:14, 233:9,	366:5, 369:8, 370:9,	services [1] - 307:8	84:13, 295:14	164:19, 165:1,
237:7, 237:19,	370:24, 417:5,	set [57] - 12:25, 58:18,	short [4] - 148:11,	165:16, 165:18,
238:22, 238:25,	425:8, 425:16,	79:14, 92:7, 114:17,	162:9, 228:23,	166:5, 166:9, 167:2,
240:6, 240:8, 243:5,	441:18, 442:11,	114:19, 114:22,	427:16	172:4, 175:14,
245:19, 248:3,	457:1	115:19, 116:2,	show [32] - 15:4,	175:22, 176:1,
248:6, 248:9,	sensitive [2] - 291:12,	116:14, 116:20,	36:16, 41:14, 43:20,	176:4, 176:6,
248:11, 249:2,	334:13	117:6, 117:11,	43:22, 43:23, 44:10,	177:13, 182:6,
249:19, 249:23,	sent [30] - 64:16,	117:19, 118:17,	61:8, 61:18, 63:18,	197:6, 198:13,
250:2, 250:5, 254:8,	91:12, 92:2, 92:3,	118:23, 119:1,	74:13, 74:24, 97:13,	198:20, 199:3,
258:23, 263:20,	99:6, 99:13, 100:17,	119:10, 121:14,	111:1, 111:10,	200:10, 201:3,
265:5, 272:6,	104:3, 104:17,	178:3, 189:24,	111:24, 122:12,	203:5, 203:19,
277:22, 278:25,	107:18, 109:1,	192:17, 205:13,	122:20, 140:13,	207:16, 207:22,
279:2, 287:16,	109:8, 125:25,	217:13, 223:19,	140:19, 198:10,	208:5, 211:12,
298:24, 299:12,	129:14, 132:9,	228:24, 231:13,	199:13, 201:16,	222:4, 223:13,
300:6, 301:2,	134:25, 138:6,	239:20, 265:2,	226:18, 237:16,	223:19, 223:25,
302:19, 303:16,	141:8, 144:20,	293:4, 293:9, 303:7,	277:9, 299:5, 308:1,	287:12, 328:7,
315:24, 323:3,	144:21, 237:19,	303:16, 332:18,	308:15, 331:6,	329:4, 349:8,
333:14, 339:22,	242:7, 252:20,	337:12, 341:1,	424:21	354:18, 368:1,
339:24, 340:2,				

370:21, 403:4, 403:10, 412:25, 413:6, 413:8, 417:16, 420:20, 421:5, 432:11, 432:24, 434:14, 435:4, 435:15, 435:18, 435:19, 438:8, 442:15, 443:1, 443:18, 443:21 significant [78] - 17:4, 17:24, 52:22, 54:10, 122:24, 159:7, 162:18, 162:21, 164:3, 164:15, 165:13, 166:19, 166:22, 167:4, 167:6, 168:8, 175:19, 178:7, 179:20, 181:17, 182:1, 182:9, 186:11, 199:12, 199:14, 199:17, 199:22, 200:22, 201:10, 201:25, 202:11, 202:13, 202:17, 203:3, 203:23, 205:18, 210:4, 222:17, 223:7, 224:8, 225:13, 327:16, 327:25, 345:24, 354:25, 360:5, 360:16, 362:3, 367:24, 368:16, 374:2, 374:3, 374:5, 395:6, 402:10, 411:8, 414:9, 420:7, 420:17, 425:5, 425:6, 429:14, 431:2, 431:10, 431:25, 432:16, 434:23, 435:1, 436:13, 436:15, 439:2, 446:13, 451:2, 451:25, 452:12, 452:16, 453:13, 453:18 significantly [3] - 172:12, 395:19, 401:17 silly [4] - 453:10, 453:11, 453:14, 453:22 SIM [2] - 105:19, 106:12 similar [4] - 41:15, 41:16, 42:19, 283:25 similarly [2] - 420:11,	422:17 simple [3] - 16:19, 423:17, 427:17 simpler [2] - 419:5, 442:16 simply [10] - 16:9, 19:2, 38:6, 46:18, 158:16, 203:19, 225:8, 380:24, 427:7, 448:16 simulate [3] - 352:20, 358:16, 406:18 simulated [2] - 352:25, 359:4 simulation [3] - 384:11, 444:6, 446:20 simulations [11] - 197:16, 199:4, 328:23, 358:12, 358:13, 358:21, 358:23, 366:19, 406:17, 443:4, 444:2 simultaneously [3] - 131:5, 134:16 single [1] - 372:16 sit [5] - 309:24, 310:25, 317:19, 335:9, 339:17 sitting [6] - 96:8, 97:2, 229:20, 296:2, 395:22, 399:19 situation [10] - 45:9, 49:2, 49:14, 149:12, 194:12, 229:22, 260:10, 276:9, 435:8, 437:18 situations [2] - 36:8, 435:16 six [10] - 48:4, 55:13, 125:10, 125:14, 125:21, 131:24, 229:15, 365:9, 401:13, 419:21 six-minute-and-21- second [1] - 132:3 sizes [2] - 435:17, 439:3 skeptic [1] - 441:13 slices [1] - 153:21 slickers [2] - 407:8, 407:9 Slide [2] - 172:2, 172:16 slide [25] - 158:18, 159:19, 160:12, 161:10, 162:12, 162:25, 163:14, 164:14, 166:3, 169:3, 174:2,	174:10, 174:11, 174:13, 175:13, 176:24, 177:3, 181:13, 183:24, 184:15, 185:17, 187:5, 187:14, 199:19 slides [8] - 199:15, 199:16, 207:25, 208:2, 208:7, 208:10, 417:10, 417:16 slight [1] - 404:20 slowly [2] - 164:6, 292:21 small [13] - 176:1, 229:21, 285:25, 435:16, 435:20, 435:24, 436:6, 436:14, 436:15, 437:4, 439:3, 447:13 smaller [4] - 166:23, 166:24, 436:21, 451:23 smallest [2] - 436:24, 437:2 smart [1] - 90:20 Snyder [47] - 15:22, 17:16, 148:25, 150:5, 150:7, 150:16, 151:8, 160:14, 171:10, 188:25, 190:19, 194:1, 194:22, 194:23, 207:9, 222:19, 270:8, 290:19, 326:20, 328:25, 330:20, 352:14, 359:9, 359:11, 361:12, 363:15, 363:20, 364:7, 365:7, 365:21, 366:5, 366:11, 374:12, 375:19, 380:9, 380:19, 414:17, 416:16, 416:21, 417:6, 417:15, 421:4, 426:10, 438:7, 438:16, 445:11, 447:23 SNYDER [2] - 4:9, 5:16 Snyder's [5] - 361:5, 367:14, 414:11, 418:15, 432:6 so-called [8] - 17:10, 177:17, 184:25, 203:2, 213:19, 213:21, 316:1,	355:17 soaked [1] - 407:24 social [2] - 43:15, 165:3 Society [2] - 210:25, 412:23 soft [5] - 56:18, 57:1, 57:2, 59:4 soften [1] - 12:8 softer [2] - 56:22, 56:23 softness [1] - 56:20 SOKOLY [1] - 3:12 solely [2] - 198:1, 244:20 solid [1] - 442:12 solve [1] - 345:23 solving [2] - 346:6, 346:8 someone [17] - 28:6, 28:8, 74:9, 77:19, 83:17, 83:23, 84:7, 84:12, 92:4, 113:2, 191:10, 249:10, 257:24, 307:4, 319:9, 350:21, 396:12 sometime [1] - 58:7 sometimes [16] - 18:1, 53:10, 54:3, 71:20, 83:18, 88:16, 120:5, 196:6, 231:24, 315:14, 377:23, 377:24, 407:8, 441:25, 442:1, 453:7 somewhat [3] - 93:1, 281:24, 435:6 somewhere [7] - 81:6, 91:1, 232:22, 279:11, 279:12, 286:8, 323:5 soon [1] - 390:24 sooner [3] - 408:11, 408:18, 409:9 sorry [38] - 42:21, 45:4, 63:24, 71:10, 94:10, 94:12, 112:19, 121:7, 170:9, 193:13, 202:3, 204:3, 207:17, 224:22, 229:1, 242:22, 244:12, 244:17, 252:2, 265:2, 277:11, 277:18, 298:8, 298:11, 318:5, 373:12, 376:4, 376:13, 388:19, 392:3, 397:12, 397:13,	399:10, 402:13, 454:6, 455:22 sort [15] - 50:2, 82:13, 82:22, 153:13, 154:5, 158:19, 160:18, 165:22, 168:12, 169:23, 216:18, 220:21, 353:2, 356:12, 382:24 sorts [4] - 329:7, 350:9, 355:8, 360:6 sound [2] - 182:4, 406:12 sounds [2] - 33:7, 67:10 source [3] - 84:11, 285:18, 285:21 sources [2] - 218:22, 297:4 speaking [3] - 6:9, 7:5, 442:24 speaks [4] - 120:2, 129:12, 149:7, 210:8 special [1] - 80:3 specialty [2] - 151:10, 286:10 specific [14] - 23:17, 35:19, 51:11, 86:12, 153:13, 191:6, 273:5, 274:14, 295:20, 295:21, 337:12, 362:7, 397:5, 397:6 Specifically [1] - 172:10 specifically [14] - 26:10, 46:8, 51:10, 104:11, 147:8, 172:8, 327:10, 360:12, 370:10, 370:14, 379:18, 379:21, 380:5, 380:17 specifics [4] - 53:2, 191:7, 304:6, 304:7 specified [2] - 289:2, 289:3 specifying [1] - 240:15 speculate [5] - 135:16, 135:21, 137:9, 138:2, 138:23 speculation [1] - 181:2 speculative [1] - 32:23 speech [1] - 294:14 speed [1] - 54:10 spell [1] - 345:11 spend [7] - 20:8, 21:8,
---	---	--	--	---

39:3, 52:22, 86:5,
287:15, 442:9
spent [4] - 208:3,
329:15, 423:11,
441:20
spiking [1] - 121:6
spirit [1] - 135:19
sports [3] - 322:8,
322:19, 322:20
spot [5] - 336:13,
338:18, 393:17,
393:18
sprayed [1] - 383:9
spraying [1] - 383:8
square [1] - 113:23
squeeze [3] - 120:15,
120:18, 120:23
squeezed [2] - 59:3,
59:4
squished [1] - 351:4
STACEY [1] - 2:22
stadium [12] - 82:8,
83:12, 84:4, 123:10,
128:5, 129:6, 133:3,
133:7, 133:9,
133:11, 146:12,
146:23
staff [3] - 154:16,
238:6, 320:18
stagnant [1] - 393:11
Stamp [2] - 104:12,
367:15
stand [4] - 47:4,
263:4, 308:15,
427:25
standard [36] - 21:12,
22:1, 22:7, 31:9,
52:19, 65:8, 163:20,
165:1, 165:3,
165:23, 165:24,
167:3, 176:3,
181:21, 210:3,
223:19, 308:21,
324:15, 324:16,
324:21, 324:24,
325:3, 325:12,
325:13, 325:16,
353:19, 354:17,
371:11, 404:21,
405:6, 405:7,
408:24, 408:25,
420:22, 424:25,
433:2
Standards [1] - 353:19
standing [1] - 309:1
stands [4] - 242:17,
242:18, 242:20,
437:3
Stanford [3] - 156:15,
346:23, 347:15

start [21] - 67:4, 129:8,
138:10, 158:17,
159:19, 169:14,
170:17, 222:25,
237:23, 247:3,
292:14, 292:21,
293:2, 319:3,
331:18, 349:17,
360:23, 370:2,
383:19, 410:19,
455:9
started [32] - 7:15,
87:16, 87:17, 87:18,
89:6, 106:19,
151:20, 155:25,
229:24, 234:11,
280:4, 280:5, 291:7,
292:11, 292:18,
293:19, 315:24,
332:12, 389:9,
390:24, 391:5,
391:15, 391:18,
397:16, 399:2,
399:4, 399:11,
400:15, 405:18,
410:13, 425:18,
455:13
starting [26] - 28:21,
126:24, 134:5,
163:5, 163:6, 163:9,
174:24, 181:10,
181:11, 184:5,
186:1, 186:15,
187:8, 187:13,
200:10, 216:4,
216:22, 292:24,
354:12, 363:8,
374:13, 374:15,
375:4, 375:7,
406:11, 432:4
starts [2] - 170:2,
170:10
STATE [1] - 1:24
State [9] - 47:7,
150:10, 227:22,
261:5, 345:5,
411:20, 412:15,
439:17, 457:8
state [12] - 47:12,
150:14, 209:4,
209:5, 228:1, 261:9,
266:9, 266:15,
345:9, 411:24,
428:4, 439:21
statement [23] - 40:7,
57:17, 84:10,
100:11, 182:2,
193:16, 206:13,
208:6, 212:11,
222:19, 248:15,

264:14, 271:8,
275:24, 278:13,
304:22, 306:22,
315:17, 334:1,
337:15, 391:23,
432:18, 436:3
STATEMENTS [1] -
5:3
statements [8] - 7:24,
11:6, 35:15, 119:22,
121:3, 337:2, 341:6,
341:8
states [6] - 105:17,
134:2, 213:9,
213:10, 258:16,
380:23
States [3] - 324:23,
325:4, 347:17
stating [3] - 201:18,
225:6, 275:6
stationed [1] - 307:18
Statistical [1] - 412:4
statistical [136] -
15:25, 151:13,
151:15, 151:16,
152:1, 152:7, 153:3,
153:15, 156:9,
156:22, 157:16,
157:21, 158:9,
163:20, 164:16,
164:19, 165:1,
165:7, 165:16,
165:18, 166:4,
166:9, 166:14,
166:15, 166:17,
167:2, 173:19,
175:14, 175:22,
175:25, 176:4,
176:6, 177:14,
180:24, 181:14,
181:16, 182:3,
182:5, 187:22,
194:3, 195:1, 195:5,
195:8, 197:6,
197:22, 198:2,
198:4, 198:13,
198:20, 199:3,
200:9, 201:3,
201:17, 203:5,
203:18, 207:16,
207:22, 208:5,
208:13, 211:12,
212:16, 213:3,
213:4, 213:13,
222:3, 223:13,
223:19, 223:25,
285:5, 285:9,
286:21, 286:25,
287:12, 328:7,
329:3, 349:8,

349:16, 349:17,
349:20, 354:8,
354:14, 354:18,
359:17, 360:2,
360:11, 360:15,
361:2, 361:22,
362:7, 363:3,
363:10, 366:25,
367:17, 367:20,
368:1, 368:5,
368:10, 370:20,
371:7, 395:14,
412:18, 412:21,
412:25, 413:6,
413:8, 413:12,
414:17, 415:1,
420:20, 421:5,
423:7, 424:2,
428:15, 428:19,
429:23, 432:11,
432:12, 432:24,
433:3, 433:16,
434:14, 435:3,
436:25, 438:5,
438:8, 439:2, 441:7,
442:14, 443:1,
443:21, 445:17,
449:8, 450:4, 450:7,
450:11, 450:12
statistically [53] -
17:3, 17:23, 159:7,
164:15, 165:13,
166:19, 166:22,
167:4, 175:19,
179:20, 181:16,
182:1, 182:9, 194:6,
200:22, 201:24,
202:10, 202:12,
202:17, 203:3,
203:23, 205:18,
210:3, 222:17,
223:7, 224:8,
225:13, 327:15,
327:25, 354:25,
360:5, 361:16,
362:3, 367:24,
368:16, 371:12,
395:6, 414:9, 420:6,
420:16, 425:5,
425:6, 430:22,
431:3, 434:23,
435:1, 446:7,
446:13, 451:2,
451:25, 452:12,
452:16, 453:18
statistically-
accepted [1] -
371:12
statistician [7] -
187:23, 286:13,
286:16, 330:16,

347:9, 437:15,
452:20
statisticians [6] -
283:11, 284:19,
330:8, 381:22,
424:16, 435:7
statistics [22] - 16:3,
73:17, 74:1, 152:13,
157:1, 157:3,
194:24, 201:21,
211:1, 236:6, 236:8,
286:17, 287:19,
287:23, 347:7,
347:10, 348:2,
412:10, 423:2,
441:5, 441:7
Statistics [2] - 412:15,
412:23
stay [5] - 88:25,
128:19, 237:2,
335:18, 365:25
stayed [1] - 133:19
staying [1] - 366:15
steel [1] - 153:17
Steffey [8] - 347:8,
411:17, 412:1,
412:7, 414:10,
427:21, 438:1
STEFFEY [2] - 4:15,
5:23
stenographic [1] -
457:10
step [3] - 160:18,
165:16, 276:11
STEPHEN [1] - 4:5
stepped [3] - 88:13,
88:15, 230:10
steps [5] - 54:21,
158:6, 190:11,
230:15, 232:21
Steroid [1] - 9:14
steroids [2] - 9:12,
9:15
Steve [2] - 101:13,
331:25
sticker [1] - 299:11
sticking [1] - 328:14
Stickum [1] - 26:4
still [17] - 20:16,
45:14, 76:11, 96:1,
97:3, 116:16,
129:16, 264:6,
302:10, 343:18,
390:18, 401:8,
401:11, 401:14,
402:4, 410:20,
436:15
Still [1] - 78:20
stimulate [1] - 353:4
stimulations [1] -

329:5
stock [1] - 153:20
stood [1] - 307:9
stop [6] - 151:15,
 176:7, 181:18,
 271:1, 333:4, 350:12
stopped [1] - 400:1
story [2] - 291:2,
 420:10
straight [1] - 134:3
strategy [1] - 154:6
STRAUSS [1] - 2:19
STRAWN [1] - 3:8
street [1] - 128:9
Street [2] - 3:3, 4:4
stress [6] - 92:17,
 93:14, 275:20,
 275:25, 276:25,
 317:1
strike [6] - 211:5,
 211:6, 219:12,
 295:7, 296:17, 297:3
striking [2] - 181:19,
 192:8
strong [3] - 172:7,
 435:21
struck [1] - 446:20
structure [3] - 221:18,
 428:21, 429:2
structured [6] -
 201:23, 428:24,
 429:5, 429:6,
 429:10, 430:6
student [1] - 211:1
students [3] - 152:23,
 154:15, 282:22
studied [11] - 151:21,
 152:9, 167:8, 201:4,
 208:11, 208:22,
 210:17, 218:14,
 337:17, 426:12,
 426:15
studies [8] - 152:5,
 165:14, 329:4,
 329:6, 431:24,
 433:17, 440:23,
 440:24
study [13] - 16:5,
 151:13, 152:13,
 200:11, 201:2,
 210:16, 373:3,
 380:15, 413:15,
 434:15, 434:21,
 441:6, 451:11
studying [3] - 163:22,
 442:10, 442:25
stuff [6] - 124:19,
 128:18, 306:23,
 313:19, 338:25,
 353:3

subatomic [1] -
 440:24
subject [19] - 9:5,
 31:14, 35:22, 36:3,
 36:14, 37:12, 65:1,
 84:19, 200:25,
 213:25, 222:20,
 265:12, 272:1,
 278:7, 332:25,
 335:25, 336:21,
 341:25, 402:10
submit [10] - 13:18,
 33:9, 36:15, 38:2,
 38:15, 38:18, 40:18,
 42:3, 42:6, 344:14
submitted [3] - 39:17,
 89:13, 105:10
subsequently [2] -
 82:19, 220:17
substance [7] -
 134:12, 262:2,
 274:11, 275:2,
 275:18, 303:8,
 444:15
Substances [1] - 26:3
substantial [10] -
 32:21, 32:25, 34:9,
 34:22, 38:17, 40:10,
 40:11, 41:1, 41:23,
 242:25
substantially [1] -
 266:2
substantive [3] -
 267:10, 269:17,
 269:21
substantively [1] -
 221:20
subtraction [1] -
 216:19
sucked [1] - 63:8
sucks [1] - 92:12
sudden [1] - 37:20
suddenly [1] - 451:24
sufficient [10] - 74:6,
 205:24, 206:16,
 206:22, 207:2,
 207:5, 210:23,
 286:4, 289:23, 370:4
sufficiently [2] -
 289:24, 316:18
suggest [6] - 29:14,
 32:18, 41:13, 44:13,
 68:2, 68:5
suggested [8] - 323:5,
 369:25, 370:19,
 387:16, 395:7,
 395:9, 404:12,
 452:24
suggesting [2] -
 207:9, 207:12

suggestion [3] -
 259:20, 453:1, 453:4
suggestive [4] -
 446:14, 452:17,
 452:19, 452:21
suggests [3] - 38:24,
 338:21, 370:11
suitable [1] - 343:6
Suite [1] - 4:4
sum [1] - 356:15
summarize [2] -
 357:18, 357:20
Summary [6] - 263:1,
 263:10, 264:8,
 273:6, 300:22,
 326:23
summary [2] - 273:18,
 382:24
Sunday [2] - 135:3,
 147:1
Super [26] - 47:25,
 71:16, 71:20, 76:3,
 76:10, 76:13, 77:3,
 77:8, 77:14, 77:18,
 77:23, 79:20, 81:4,
 81:10, 84:21,
 111:13, 128:20,
 130:15, 132:25,
 141:21, 141:23,
 142:1, 142:8,
 142:19, 142:21,
 142:25
Superimposed [1] -
 403:20
supervised [3] -
 152:22, 153:1,
 285:20
supervising [1] -
 433:8
Supplemental [1] -
 101:23
support [5] - 181:9,
 284:11, 327:7,
 346:6, 349:1
supported [3] - 162:3,
 349:22, 427:8
suppose [1] - 39:15
supposed [9] - 62:23,
 70:7, 94:11, 277:20,
 278:3, 283:16,
 283:17, 323:9,
 323:11
surely [1] - 46:2
surface [1] - 35:3
surgery [1] - 313:2
surprise [1] - 219:8
surprised [1] - 214:1
surrounding [1] -
 261:17
suspected [2] - 164:7,

164:9
suspend [1] - 20:22
suspended [4] -
 24:17, 25:11, 45:3,
 249:9
suspenders [1] -
 283:8
suspending [1] -
 45:11
suspends [1] - 250:2
suspension [4] - 36:3,
 36:14, 45:7, 45:17
sustained [2] - 271:6,
 271:24
swapped [1] - 407:12
swaps [1] - 91:4
swear [1] - 261:2
sweatshirts [1] -
 407:9
switch [2] - 190:23,
 190:24
switched [4] - 161:2,
 161:22, 369:3, 369:9
switching [1] - 413:24
sworn [8] - 47:6,
 150:9, 227:21,
 261:4, 345:4, 380:1,
 411:19, 439:16
symbols [1] - 430:13
synch [1] - 446:16
Syracuse [1] - 322:15
system [1] - 28:10

T

t-test [2] - 419:8,
 419:16
Tab [1] - 198:25
Table [10] - 159:22,
 160:13, 161:11,
 166:7, 173:11,
 198:3, 198:15,
 201:15, 208:21,
 225:3
table [8] - 159:21,
 162:24, 163:1,
 166:7, 166:12,
 169:22, 212:8,
 369:14
tack [1] - 53:7
tackiness [1] - 55:19
tackled [1] - 426:4
Tagliabue [2] - 45:5,
 46:7
tailored [1] - 335:25
takeaway [2] - 179:15,
 194:2
talent [1] - 284:23
talks [5] - 22:20,
 140:9, 238:20,

314:25, 397:4
tamper [1] - 147:22
tampered [5] - 16:13,
 18:19, 254:13,
 319:16, 320:5
tampering [18] -
 16:24, 193:1,
 207:24, 208:15,
 209:2, 209:7, 209:8,
 209:12, 209:22,
 210:10, 249:20,
 314:15, 316:17,
 327:9, 329:17,
 329:20, 349:4
tape [3] - 303:19,
 303:22
task [1] - 30:19
tasked [3] - 33:18,
 145:3, 145:8
taught [2] - 152:12,
 152:16
teacher [1] - 188:24
teaching [2] - 151:7,
 152:20
Team [1] - 307:7
team [63] - 10:7,
 10:10, 11:9, 16:4,
 17:16, 21:2, 22:17,
 23:20, 47:18, 56:14,
 75:14, 86:3, 100:16,
 100:22, 101:12,
 101:15, 101:17,
 107:8, 107:12,
 108:25, 109:5,
 110:1, 110:2,
 138:11, 155:11,
 155:16, 158:13,
 173:22, 174:5,
 195:4, 195:7,
 236:12, 245:24,
 255:18, 256:16,
 262:13, 264:17,
 267:5, 268:24,
 284:25, 286:8,
 286:18, 291:21,
 307:6, 324:10,
 324:13, 331:14,
 332:22, 334:25,
 341:4, 346:25,
 347:4, 348:8, 378:8,
 406:6, 413:4,
 416:21, 417:6,
 423:25, 424:3,
 424:4, 438:16
teams [22] - 152:23,
 206:1, 237:2,
 255:14, 256:5,
 256:8, 256:10,
 256:11, 256:14,
 256:18, 256:21,

258:7, 259:21, 260:3, 260:4, 296:19, 327:15, 327:20, 355:14, 376:22, 376:24, 408:13	183:8, 207:17, 425:7, 425:20, 429:13, 429:20, 429:22, 452:19, 452:21, 452:22	238:1, 255:5, 288:2, 288:19, 288:25, 289:4, 289:10, 291:23, 294:10, 316:2, 319:22, 320:1, 320:11, 351:24, 352:4, 355:4, 355:5, 356:1, 374:25, 376:15, 377:13, 377:15, 378:3, 381:7, 381:10, 381:18, 387:2, 387:5, 389:10, 392:13, 396:1, 413:25, 414:1, 422:4, 431:15	231:9, 231:17, 232:19, 233:7, 233:10, 234:3, 234:6, 234:10, 234:11, 234:21, 234:25, 235:3, 237:6, 239:1, 239:7, 249:5, 282:4, 282:14, 282:19, 283:9, 283:18, 285:5, 285:9, 291:15, 298:16, 309:19, 310:1, 310:6, 310:9, 339:20, 339:21, 339:25, 340:3, 349:14, 351:4, 352:1, 352:6, 352:7, 354:2, 354:7, 355:16, 362:15, 375:14, 377:20, 378:19, 392:25, 396:17, 399:18, 406:7, 407:16	136:3, 136:17, 137:22, 138:3, 138:5, 138:9, 138:12, 138:15, 139:12, 139:15, 139:20, 140:11, 140:15, 140:19, 141:2, 141:5, 141:7, 144:17, 144:21, 145:12, 275:16, 277:8, 277:10, 277:18, 310:13, 310:16, 310:21, 311:4, 311:14, 313:7, 316:23, 317:2, 317:6, 332:17, 333:22, 335:24, 337:19, 337:23, 338:1, 338:3, 338:5
tech [1] - 197:20	terms [56] - 13:25, 25:2, 26:22, 27:12, 38:13, 39:18, 73:11, 87:22, 92:1, 151:17, 152:8, 156:10, 157:6, 157:11, 157:13, 158:8, 164:18, 172:5, 172:25, 177:14, 185:4, 186:23, 251:15, 260:3, 270:21, 272:22, 276:12, 283:2, 284:14, 296:7, 296:18, 301:10, 304:14, 308:21, 310:24, 315:2, 315:16, 322:19, 323:8, 324:24, 325:6, 332:18, 333:2, 337:22, 337:23, 338:16, 339:19, 339:21, 339:24, 340:9, 341:3, 346:10, 378:22, 428:1, 428:21	tester [1] - 17:2	Tests [1] - 258:19	texted [1] - 139:22
technical [8] - 183:8, 345:23, 348:21, 417:12, 418:21, 430:11, 430:15, 446:11	test [40] - 17:17, 178:4, 178:10, 185:4, 198:9, 207:4, 215:10, 229:7, 231:25, 232:5, 232:15, 233:8, 233:24, 282:7, 301:24, 319:14, 328:18, 342:5, 351:2, 351:11, 351:19, 377:12, 377:13, 378:25, 380:14, 383:24, 385:19, 385:20, 385:23, 386:2, 386:19, 387:10, 387:12, 387:21, 387:22, 387:23, 419:8, 419:16, 419:22, 449:11	testified [19] - 47:7, 150:10, 227:22, 255:11, 255:20, 261:5, 266:10, 295:21, 326:20, 345:6, 411:20, 415:22, 429:8, 431:16, 433:1, 433:25, 434:6, 437:1, 439:17	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	texts [34] - 14:10, 14:15, 14:22, 14:24, 34:23, 38:25, 39:10, 39:14, 43:8, 43:25, 44:4, 44:5, 44:6, 44:9, 44:10, 44:11, 61:21, 78:4, 79:14, 84:23, 85:14, 85:15, 85:20, 86:9, 89:25, 91:11, 92:2, 95:2, 315:1, 331:15, 335:16, 337:1, 339:12, 341:11
techniques [1] - 449:1	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	text [104] - 37:20, 39:11, 39:19, 40:8, 42:1, 43:20, 43:22, 43:24, 44:7, 76:4, 78:7, 78:14, 78:18, 92:7, 95:20, 100:11, 100:17, 100:23, 101:3, 101:7, 101:11, 101:16, 103:7, 104:3, 104:15, 104:17, 107:17, 109:1, 109:5, 109:14, 110:2, 110:7, 110:8, 110:18, 110:22, 111:2, 111:11, 111:24, 112:1, 112:9, 112:13, 125:12, 125:25, 126:19, 126:23, 127:3, 127:5, 128:21, 129:15, 129:17, 131:18, 132:8, 132:9, 132:15, 133:22, 134:24, 135:4, 135:6, 135:12, 135:15, 135:18,	THE [106] - 1:3, 1:24, 49:17, 53:1, 54:14, 54:17, 54:22, 56:2, 56:11, 59:15, 59:18, 60:17, 60:20, 60:23, 61:1, 61:14, 61:17, 66:1, 66:3, 67:2, 68:17, 69:15, 69:18, 69:23, 70:6, 70:21, 70:25, 71:3, 71:10, 71:13, 72:10, 74:23, 80:13, 80:17, 88:11, 88:22, 88:25, 89:4, 89:16, 99:23, 105:15, 109:23, 117:5, 117:8, 117:10, 117:15, 117:18, 117:24, 118:3, 122:21, 124:17, 125:23, 127:25, 128:4, 133:12, 133:18, 136:10, 137:13, 137:15, 137:18, 146:3, 146:6, 146:9, 146:13, 146:15, 146:17, 146:21,
Ted [7] - 11:7, 14:25, 15:22, 20:4, 100:12, 118:2, 261:1	test [40] - 17:17, 178:4, 178:10, 185:4, 198:9, 207:4, 215:10, 229:7, 231:25, 232:5, 232:15, 233:8, 233:24, 282:7, 301:24, 319:14, 328:18, 342:5, 351:2, 351:11, 351:19, 377:12, 377:13, 378:25, 380:14, 383:24, 385:19, 385:20, 385:23, 386:2, 386:19, 387:10, 387:12, 387:21, 387:22, 387:23, 419:8, 419:16, 419:22, 449:11	testify [15] - 11:24, 13:20, 13:21, 15:23, 20:1, 20:2, 37:17, 44:9, 286:19, 329:2, 331:11, 343:12, 400:17, 453:15, 453:20	tests [1] - 258:19	
telephone [14] - 112:6, 124:7, 125:4, 125:16, 129:24, 130:10, 130:24, 131:4, 131:10, 134:13, 143:14, 143:21, 145:14, 149:23	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testified [19] - 47:7, 150:10, 227:22, 255:11, 255:20, 261:5, 266:10, 295:21, 326:20, 345:6, 411:20, 415:22, 429:8, 431:16, 433:1, 433:25, 434:6, 437:1, 439:17	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
Telephones [1] - 130:3	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
telephoned [1] - 262:5	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
telephones [3] - 43:12, 102:2, 149:22	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
television [2] - 406:18, 406:19	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
temperature [38] - 17:12, 18:21, 34:2, 120:11, 169:15, 184:5, 184:7, 192:2, 220:18, 221:5, 231:16, 231:19, 234:24, 235:2, 237:13, 288:9, 288:24, 290:8, 353:25, 364:25, 365:2, 366:6, 372:2, 393:5, 393:7, 393:8, 393:12, 393:15, 394:2, 394:4, 394:5, 394:6, 394:7, 394:11, 394:12, 394:18	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
temperatures [4] - 189:18, 352:12, 353:1	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
temptation [1] - 455:25	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
ten [12] - 77:16, 99:25, 150:23, 236:20, 386:9, 399:2, 399:4, 420:16, 420:17, 432:12, 432:15, 433:11	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
tendency [1] - 184:20	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	
term [11] - 183:7,	testimony [34] - 6:22, 19:17, 32:15, 44:2, 48:15, 150:5, 196:25, 200:1, 255:21, 265:24, 266:15, 271:10, 279:20, 290:17, 293:5, 302:5, 304:4, 304:9, 307:17, 307:24, 308:14, 350:22, 359:8, 377:19, 378:5, 379:20, 379:23, 379:25, 380:1, 414:11, 417:13, 427:20, 427:24, 445:10	testifies [1] - 10:12	tests [16] - 18:16, 197:9, 197:12, 197:15, 198:7, 258:17, 282:20, 283:3, 290:9, 302:2, 302:23, 303:1, 352:5, 376:11, 427:12	

146:24, 147:4, 147:9, 147:14, 147:18, 148:1, 155:20, 155:25, 156:6, 168:10, 168:17, 168:25, 170:11, 170:16, 170:19, 170:24, 177:9, 178:3, 180:4, 180:12, 180:15, 180:18, 180:22, 189:22, 225:21, 230:5, 252:4, 265:22, 271:25, 298:9, 318:5, 397:12, 398:5, 398:8, 403:25, 409:13, 409:19, 439:12, 449:14 theirs [1] - 423:4 themselves [7] - 7:6, 217:2, 338:21, 355:4, 385:5, 429:4, 449:23 THEODORE [2] - 4:10, 5:18 Theodore [2] - 261:11, 263:12 theoretical [3] - 221:3, 286:11, 288:8 theory [6] - 164:2, 167:14, 250:9, 424:2, 431:21, 441:19 therefore [10] - 23:3, 46:10, 182:2, 182:23, 200:24, 208:6, 266:12, 267:22, 354:25, 356:22 Therefore [2] - 205:22, 222:20 thermo [1] - 393:13 thermodynamics [1] - 169:8 thesis [3] - 151:21, 284:6, 284:10 they've [5] - 22:19, 33:25, 158:12, 213:11, 315:5 thick [3] - 98:9, 269:10, 337:25 thinking [8] - 81:4, 128:20, 237:12, 245:17, 366:6, 420:19, 423:16, 441:20 third [12] - 130:2, 134:3, 178:9, 178:11, 205:21,	242:21, 242:22, 333:7, 350:5, 365:19, 381:11, 430:4 THOMAS [2] - 1:5, 4:9 Thomas [2] - 47:13, 102:6 thorough [2] - 29:19, 31:1 thousands [1] - 320:24 thousandth [1] - 353:20 Three [1] - 166:11 three [59] - 22:2, 49:18, 54:3, 59:16, 67:14, 70:19, 75:12, 88:15, 111:2, 111:11, 111:24, 117:12, 129:23, 130:2, 132:19, 140:19, 152:5, 158:18, 158:20, 168:12, 168:14, 168:24, 174:3, 175:5, 177:1, 187:18, 191:14, 191:23, 192:4, 199:2, 240:8, 240:13, 292:11, 294:22, 294:25, 297:4, 303:23, 319:23, 320:11, 324:25, 330:14, 330:21, 359:12, 366:8, 376:7, 378:20, 379:2, 380:6, 381:1, 381:3, 381:12, 400:17, 400:25, 401:22, 414:13, 416:9, 417:17, 421:21, 445:13 three-and-a-half [3] - 168:14, 168:24, 175:5 three-and-a-half- minute [1] - 177:1 three-page [1] - 330:14 three-years' [1] - 379:2 threshold [15] - 159:17, 165:8, 165:9, 165:20, 168:13, 183:13, 183:15, 183:23, 184:12, 185:19, 187:18, 220:8, 433:3, 433:5, 433:13	threw [2] - 277:17, 338:11 throughout [12] - 151:11, 188:6, 204:4, 287:21, 366:1, 366:7, 367:6, 367:8, 372:3, 383:14, 397:18, 407:5 throw [1] - 55:20 throwing [2] - 54:7, 69:7 Thursday [1] - 133:15 time-dependent [3] - 169:16, 352:8, 357:4 timed [1] - 360:9 timely [1] - 39:24 timing [130] - 34:1, 126:23, 131:16, 132:14, 134:9, 159:1, 169:7, 169:21, 172:6, 179:18, 179:19, 189:17, 197:24, 198:10, 198:15, 198:17, 198:22, 199:8, 201:8, 201:18, 201:19, 202:1, 202:11, 202:16, 202:18, 203:9, 203:22, 204:1, 204:14, 204:18, 204:21, 205:2, 205:13, 205:24, 206:3, 206:9, 206:22, 207:1, 207:5, 207:11, 210:13, 210:14, 210:17, 210:18, 210:21, 210:22, 211:3, 211:4, 211:14, 211:20, 212:9, 212:25, 213:1, 213:2, 213:12, 213:18, 223:9, 223:23, 233:6, 290:18, 328:16, 328:19, 328:24, 342:19, 357:9, 357:10, 357:13, 357:25, 359:19, 360:1, 360:8, 360:9, 360:16, 360:18, 360:23, 361:1, 373:21, 380:8, 380:11, 380:16, 380:18, 380:19, 380:25, 381:2, 381:4, 381:5, 381:6,	381:9, 381:16, 399:23, 414:19, 415:5, 415:13, 415:14, 416:22, 417:7, 418:8, 418:15, 418:17, 420:9, 422:2, 422:8, 427:22, 428:6, 428:9, 429:8, 429:9, 429:14, 430:8, 430:13, 430:16, 430:21, 431:1, 431:9, 431:14, 431:25, 438:7, 438:13, 438:15, 439:5, 439:8, 445:19, 445:22, 449:8, 449:12, 449:17, 450:7, 450:20 tiny [6] - 404:21, 404:23, 404:25, 408:24, 447:10, 447:14 tipped [1] - 276:20 tips [1] - 276:19 title [3] - 98:13, 345:15, 440:2 today [36] - 8:2, 8:10, 10:22, 15:2, 25:1, 28:23, 30:2, 30:5, 30:9, 31:4, 33:8, 35:6, 38:5, 39:15, 42:6, 96:8, 149:13, 157:19, 196:25, 272:17, 272:21, 272:23, 272:24, 279:15, 279:20, 286:19, 290:17, 321:8, 344:7, 355:19, 364:7, 369:18, 417:13, 455:20, 456:17 together [9] - 8:17, 61:4, 156:5, 263:14, 264:10, 276:18, 276:19, 317:12, 389:19 Tom [28] - 6:12, 6:13, 7:19, 10:23, 10:24, 11:9, 11:11, 13:23, 14:4, 14:6, 14:16, 42:10, 47:3, 52:23, 60:14, 61:6, 63:2, 94:10, 111:20, 128:1, 148:6, 152:4, 273:13, 275:6, 275:17, 275:22, 314:2, 332:1 TOM [4] - 3:4, 3:21,	4:3, 5:15 Tom's [4] - 13:24, 92:12, 119:13, 332:3 ton [3] - 329:15, 342:5 tongue [1] - 164:18 took [46] - 53:22, 69:24, 70:2, 71:25, 114:18, 156:24, 173:25, 211:20, 212:15, 214:10, 214:15, 214:18, 215:1, 215:13, 246:11, 246:14, 248:4, 251:13, 260:1, 276:5, 292:23, 307:13, 314:22, 320:17, 330:17, 349:18, 351:5, 351:12, 351:20, 352:10, 352:11, 372:17, 380:24, 381:25, 382:8, 396:21, 397:15, 397:22, 406:2, 406:6, 411:11, 412:9, 442:5, 442:16, 454:23 tool [1] - 371:12 tools [1] - 371:7 top [15] - 34:23, 99:1, 99:3, 99:5, 127:2, 132:18, 152:18, 162:13, 169:9, 171:20, 172:19, 174:14, 258:23, 299:8, 353:13 topic [2] - 144:3, 447:18 topics [3] - 100:19, 112:25, 113:6 torrential [1] - 55:1 total [3] - 125:5, 125:6, 131:11 totalities [1] - 392:22 totality [5] - 41:24, 316:19, 316:20, 317:9, 393:3 totally [7] - 264:11, 286:24, 296:24, 303:24, 317:5, 341:5, 359:24 touch [3] - 12:1, 88:16, 246:4 touchdown [2] - 73:18, 166:1 touched [1] - 337:21 tough [1] - 147:10 toward [4] - 105:17, 111:9, 111:23,
---	---	--	---	---

115:21
towards [2] - 366:21, 367:7
track [3] - 128:22, 190:5, 226:15
tracked [1] - 190:3
traction [1] - 53:12
traditional [1] - 281:24
traffic [2] - 52:8, 251:20
trained [3] - 192:1, 269:9, 269:10
training [3] - 55:12, 75:16, 122:15
transcribed [1] - 161:18
transcript [4] - 340:24, 344:6, 344:10, 344:17
transcription [1] - 457:9
transient [53] - 172:20, 197:12, 198:6, 198:9, 198:10, 199:3, 204:16, 204:17, 204:20, 205:1, 205:22, 205:23, 206:8, 206:16, 206:21, 215:12, 220:24, 224:15, 225:4, 225:10, 328:17, 328:18, 352:6, 352:7, 352:16, 353:6, 353:11, 353:23, 357:1, 357:2, 358:6, 358:19, 358:22, 366:19, 370:12, 372:4, 382:24, 383:15, 403:3, 403:5, 403:17, 403:18, 404:6, 404:19, 405:11, 405:20, 409:20, 417:19, 438:11, 443:3, 443:8, 444:1, 445:4
transients [1] - 383:1
transition [3] - 171:24, 174:14, 175:6
translated [1] - 375:1
translation [2] - 375:5, 375:9
transparency [1] - 344:12
transparent [2] - 302:20, 418:21
treated [2] - 249:19, 435:16

treatment [4] - 26:25, 27:4, 249:12, 396:23
trend [1] - 415:17
Trent [1] - 64:11
trial [5] - 31:10, 31:11, 434:7, 434:8, 434:9
trials [1] - 325:4
triangle [3] - 403:10, 404:21, 408:24
tried [20] - 12:24, 107:20, 120:22, 174:5, 178:10, 199:7, 323:21, 329:13, 353:3, 358:16, 384:14, 385:6, 393:10, 393:14, 394:21, 410:23, 410:25, 432:6, 437:13
triple [1] - 193:6
trouble [2] - 445:7, 446:2
TROY [2] - 4:10, 5:17
Troy [1] - 228:3
true [22] - 183:19, 215:24, 218:23, 220:19, 223:2, 234:14, 237:1, 284:22, 296:15, 301:4, 301:5, 342:7, 386:19, 386:20, 386:21, 388:17, 388:22, 432:22, 436:2, 436:4, 436:6, 436:20
truly [1] - 30:18
trust [1] - 14:3
Trustees [1] - 322:16
truth [1] - 30:24
truthful [3] - 268:21, 278:13, 341:8
truthfully [2] - 11:16, 278:11
try [39] - 6:9, 28:17, 49:10, 53:7, 53:16, 54:8, 63:25, 81:6, 94:5, 148:20, 189:6, 248:20, 263:6, 295:16, 295:21, 302:20, 328:19, 352:19, 352:20, 371:1, 384:15, 388:1, 391:8, 396:18, 397:5, 406:18, 407:4, 422:22, 427:16, 431:7, 431:8, 445:6, 448:14, 448:15, 448:17, 450:5, 450:10, 450:21

trying [42] - 26:8, 56:20, 85:18, 88:20, 92:17, 94:21, 95:6, 134:18, 134:21, 144:11, 144:12, 144:25, 147:11, 173:23, 176:9, 178:4, 205:12, 205:13, 206:14, 208:4, 213:20, 229:5, 250:3, 267:11, 268:11, 277:12, 278:12, 278:16, 292:16, 292:17, 292:23, 328:9, 329:16, 338:10, 346:16, 353:4, 355:6, 374:10, 428:8, 436:19, 441:21, 455:5
tubing [1] - 353:16
Tuesday [3] - 1:10, 6:2, 133:14
TULUMELLO [1] - 3:22
turn [27] - 8:8, 52:5, 57:4, 66:21, 84:18, 85:9, 85:10, 86:9, 90:10, 98:16, 109:9, 124:22, 125:24, 126:15, 127:1, 129:4, 129:21, 131:8, 132:17, 159:18, 169:2, 205:19, 253:12, 309:13, 311:13, 333:5, 422:19
turned [6] - 83:16, 85:2, 94:1, 230:11, 334:18, 336:5
turning [2] - 155:2, 336:22
turns [5] - 12:25, 17:5, 55:5, 186:8, 443:13
TV [1] - 406:21
twelve [1] - 391:11
twice [5] - 125:19, 125:21, 130:21, 131:10, 411:2
Two [3] - 102:5, 111:20, 111:21
two [129] - 14:22, 27:19, 29:2, 33:11, 54:3, 59:15, 61:3, 67:20, 67:21, 68:19, 76:3, 76:9, 77:20, 79:20, 102:23, 125:5, 126:16, 128:14, 130:12,

130:23, 133:13, 133:19, 134:13, 134:15, 134:23, 135:15, 138:5, 142:12, 143:11, 149:16, 149:22, 151:25, 152:21, 159:8, 160:4, 161:2, 161:19, 163:11, 176:18, 176:20, 178:13, 180:8, 184:20, 186:4, 186:5, 187:25, 189:10, 191:7, 220:7, 223:5, 225:25, 226:9, 226:14, 227:10, 227:15, 232:4, 232:6, 232:8, 233:24, 240:16, 240:24, 251:24, 252:2, 252:4, 252:5, 258:17, 274:7, 276:20, 281:18, 293:15, 293:25, 294:19, 300:25, 306:8, 309:13, 320:1, 327:15, 327:20, 332:16, 333:3, 349:5, 349:8, 352:5, 362:2, 363:8, 369:7, 369:13, 369:15, 369:24, 374:25, 377:20, 378:20, 388:11, 388:20, 389:3, 389:14, 389:17, 389:23, 390:4, 390:13, 390:16, 390:17, 390:18, 391:20, 401:16, 402:4, 402:5, 404:21, 405:7, 405:23, 406:11, 406:12, 408:11, 408:18, 408:25, 409:9, 415:24, 415:25, 416:9, 418:22, 419:1, 419:8, 420:6, 424:14, 437:12, 437:15, 438:10, 456:23
two-hours' [1] - 226:9
two-month [1] - 68:19
two-sample [1] - 419:8
two-sigma [1] - 408:25
two-week [3] - 77:20,

79:20, 142:12
Tygon [1] - 353:16
type [9] - 9:6, 15:18, 45:12, 151:17, 151:18, 151:19, 262:9, 267:25, 438:6
types [5] - 231:25, 232:6, 232:8, 305:16, 346:7
typically [7] - 49:13, 55:14, 133:8, 234:4, 234:6, 437:16

U

U.S [1] - 152:3
Ugh...Tom [1] - 62:21
ultimate [2] - 32:7, 301:10
ultimately [13] - 12:22, 34:19, 51:25, 64:15, 65:11, 116:1, 120:12, 148:2, 283:1, 301:6, 302:15, 316:17, 423:10
unable [1] - 371:3
unaccompanied [1] - 307:21
unanimous [1] - 324:11
unapproved [2] - 24:10, 250:4
unaware [1] - 113:21
uncertain [6] - 289:6, 289:20, 291:18, 315:7, 343:11, 392:12
uncertainties [5] - 187:23, 219:11, 445:2, 445:9, 451:19
uncertainty [28] - 160:11, 176:18, 176:19, 176:20, 176:21, 183:20, 187:20, 187:21, 214:12, 290:3, 290:5, 290:7, 290:8, 290:9, 290:10, 291:14, 300:25, 301:16, 301:18, 302:10, 302:12, 302:17, 303:4, 419:25, 437:17, 451:20, 451:21, 451:22
under [64] - 9:7, 9:14, 11:11, 22:22, 25:4, 26:10, 26:14, 26:23, 27:10, 27:11, 27:12,

28:3, 28:5, 28:9,
28:18, 29:1, 29:8,
30:21, 31:1, 31:7,
31:12, 31:21, 32:3,
32:6, 36:11, 40:23,
45:17, 126:16,
129:11, 149:13,
152:19, 174:19,
175:23, 177:23,
179:22, 186:4,
205:10, 214:16,
221:20, 221:21,
238:3, 238:10,
250:9, 255:20,
266:13, 271:19,
271:21, 295:1,
311:12, 311:21,
311:25, 318:24,
323:12, 325:13,
357:17, 365:10,
379:20, 379:25,
385:15, 400:11,
404:25, 417:17,
420:5, 429:3
undergraduate [1] -
412:9
underinflated [2] -
218:7, 378:13
underlying [2] - 31:16,
344:9
undermine [1] - 331:2
underneath [4] -
126:3, 131:23,
134:2, 407:8
underscores [1] -
193:20
understood [13] -
205:1, 220:20,
220:21, 281:4,
305:12, 305:13,
358:1, 359:6,
377:23, 401:23,
413:8, 424:17, 439:5
undertaken [2] -
323:19, 427:12
unequivocal [1] -
34:15
unexamined [2] -
222:21, 223:9
unexplained [4] -
175:21, 177:17,
179:12, 179:21
unfair [1] - 135:20
unfortunately [2] -
28:1, 350:23
unfounded [6] -
359:24, 361:19,
361:20, 364:1,
364:2, 368:22
unidentified [2] -

222:21, 223:8
Uniform [2] - 26:3,
26:6
uniform [2] - 228:14,
393:17
uniforms [1] - 25:14
unimportant [1] -
211:3
Union [6] - 245:17,
305:6, 335:2, 335:4,
335:9, 344:6
unit [1] - 243:18
United [3] - 324:22,
325:4, 347:17
University [15] -
47:15, 150:23,
151:1, 151:3, 151:4,
155:12, 280:9,
322:15, 346:24,
347:15, 347:20,
412:11, 412:15,
440:1, 440:9
unknown [3] - 17:19,
17:20, 315:6
unknowns [8] - 16:10,
17:6, 17:15, 17:21,
287:25, 315:10,
315:17, 315:20
unless [8] - 7:11,
21:19, 166:1,
266:14, 275:1,
275:8, 298:6, 393:21
unlike [1] - 377:10
unlikely [6] - 167:9,
208:24, 208:25,
210:15, 243:3,
377:11
unprecedented [2] -
130:17, 132:24
unquestioned [1] -
29:21
unrealistic [6] - 94:22,
95:7, 95:12, 95:23,
95:25, 145:1
unreliable [2] - 286:5,
317:22
unreported [3] -
211:21, 212:5, 212:7
unscientifically [1] -
193:5
unusual [5] - 13:8,
72:15, 87:21, 88:3,
142:23
unweighted [1] -
423:19
up [93] - 6:9, 16:25,
19:4, 19:5, 19:6,
28:25, 31:5, 36:19,
41:9, 43:24, 44:5,
44:6, 45:2, 50:3,

50:17, 54:10, 54:23,
57:14, 64:3, 69:7,
69:11, 70:6, 70:7,
80:13, 81:15, 91:1,
92:16, 93:5, 93:6,
93:10, 94:23, 95:8,
103:20, 104:1,
115:5, 116:16,
126:18, 129:1,
140:13, 142:23,
153:10, 154:25,
156:2, 156:18,
164:10, 169:15,
171:17, 171:24,
172:14, 173:2,
178:3, 190:25,
205:13, 221:1,
223:11, 223:19,
227:14, 231:14,
238:8, 247:14,
259:17, 284:23,
291:7, 350:3,
352:22, 353:11,
356:16, 360:2,
360:4, 361:22,
364:11, 364:23,
366:25, 370:5,
372:19, 384:21,
384:22, 390:9,
395:7, 397:24,
400:17, 400:23,
400:24, 401:14,
402:3, 405:25,
421:17, 443:18,
447:17, 453:16,
455:19, 456:24

upcoming [1] - 331:25
updated [1] - 99:6
upfront [1] - 75:18
upside [1] - 173:16
uptick [1] - 302:24
urge [2] - 13:16, 149:8
usage [6] - 114:1,
114:4, 349:10,
350:7, 356:3, 388:6
useful [1] - 456:19
uses [2] - 262:19,
433:16
utilized [2] - 230:22,
232:22

V

valid [1] - 438:8
validate [2] - 358:19,
421:14
valuable [1] - 42:15
value [24] - 166:6,
166:23, 168:13,
177:12, 177:14,

177:23, 177:24,
179:9, 179:11,
181:10, 181:11,
187:8, 187:13,
216:4, 216:22,
222:5, 222:7, 418:2,
418:20, 419:20,
420:4, 420:15,
424:23, 425:23
value's [2] - 166:13,
420:12
values [16] - 149:14,
163:5, 163:6, 163:9,
166:19, 174:24,
186:1, 186:15,
186:16, 381:24,
403:20, 417:15,
418:23, 418:24,
419:13, 432:14
variability [45] -
180:24, 181:15,
182:10, 222:15,
222:16, 222:23,
223:14, 224:1,
224:13, 225:7,
361:3, 361:14,
361:15, 361:23,
362:6, 362:18,
362:23, 363:1,
383:25, 387:9,
417:1, 419:15,
419:24, 419:25,
420:2, 429:23,
432:10, 434:24,
437:18, 437:19,
437:22, 438:22,
438:23, 446:5,
446:7, 446:22,
449:16, 449:19,
451:3, 451:25,
454:11, 454:22,
455:6, 455:13
variable [28] - 173:14,
201:13, 206:25,
213:20, 213:21,
215:4, 362:5, 365:1,
380:11, 380:16,
380:19, 380:20,
380:25, 419:19,
429:8, 429:9,
429:25, 430:8,
430:16, 430:21,
431:2, 431:3,
431:10, 431:16,
438:7, 439:1, 450:7
variables [4] - 173:12,
198:16, 202:14,
210:19
variance [9] - 181:8,
182:14, 182:21,

182:25, 183:6,
224:7, 224:10,
419:17, 451:23
variances [2] - 159:6,
420:15
variants [1] - 181:3
variation [12] - 159:3,
205:24, 205:25,
206:22, 212:19,
213:6, 213:24,
222:9, 361:24,
362:19, 368:6, 421:7
variations [2] -
169:15, 362:1
variety [3] - 17:13,
345:22, 346:15
various [13] - 27:6,
41:19, 52:7, 76:4,
82:11, 206:5,
298:15, 306:12,
351:21, 352:10,
352:12, 358:1
vary [3] - 17:18, 17:19,
428:2
veering [1] - 355:20
verbally [1] - 265:18
verdict [1] - 324:9
verifying [1] - 358:22
version [5] - 88:11,
88:19, 197:20,
376:21, 430:9
versus [13] - 19:21,
73:10, 217:8,
240:23, 241:1,
319:15, 323:25,
364:4, 365:18,
368:17, 382:21,
422:9, 447:7
VI [1] - 124:24
Vice [10] - 2:6, 2:7,
24:12, 24:22, 25:1,
25:6, 228:6, 228:9,
249:24, 263:15
vice [4] - 246:7,
345:16, 345:17,
347:14
victory [1] - 424:24
videotape [1] - 352:19
view [21] - 19:9, 19:15,
95:19, 154:5, 188:2,
191:19, 201:19,
210:2, 249:8,
273:12, 284:2,
322:23, 378:13,
416:12, 443:20,
443:25, 444:4,
444:22, 444:25,
454:25, 455:6
viewed [4] - 24:15,
271:11, 276:12,

304:20
viewing [1] - 348:16
views [9] - 190:15,
 287:19, 361:6,
 363:15, 366:11,
 371:16, 373:4,
 447:23, 448:7
vigorously [1] -
 396:12
Vikings [9] - 23:10,
 23:12, 246:14,
 253:10, 253:17,
 253:21, 254:2,
 259:17, 260:13
Vikings' [1] - 36:18
VINCENT [2] - 4:10,
 5:17
Vincent [19] - 8:17,
 14:14, 19:18, 20:1,
 25:2, 27:25, 28:7,
 28:8, 226:4, 227:13,
 228:1, 228:3, 228:4,
 229:10, 241:9,
 249:18, 251:9,
 310:10, 310:14
Vincent's [1] - 27:16
violate [1] - 248:20
violated [2] - 20:25,
 252:16
violating [1] - 86:12
violation [8] - 32:19,
 33:16, 35:11, 36:16,
 218:7, 234:1, 234:5,
 245:15
violations [7] - 24:25,
 45:12, 228:14,
 245:10, 269:19
Violations [1] - 26:7
violence [1] - 46:3
Virginia [1] - 151:3
virtually [2] - 152:9,
 153:21
vitamins [1] - 153:21
void [1] - 425:24

W

wait [1] - 135:25
waive [1] - 265:13
waiver [1] - 270:2
waives [1] - 267:6
waiving [4] - 8:6,
 267:12, 269:13,
 270:21
walk [7] - 83:19,
 128:8, 146:11,
 158:19, 163:1,
 169:23, 307:20
walked [3] - 305:10,
 308:10, 309:8

Walt [18] - 34:14,
 183:18, 291:23,
 293:16, 293:22,
 293:23, 294:1,
 294:6, 295:3,
 296:21, 297:21,
 301:13, 302:21,
 303:7, 359:2, 369:3,
 369:9, 455:10
wants [3] - 9:18,
 266:14, 268:10
Warm [2] - 257:1,
 257:2
warm [16] - 19:3,
 169:1, 171:17,
 221:1, 221:7,
 234:16, 245:24,
 246:3, 246:12,
 256:25, 257:10,
 260:1, 290:25,
 370:5, 443:11,
 447:17
WARM [1] - 257:2
warmed [7] - 36:19,
 172:14, 173:1,
 246:18, 256:24,
 257:16, 259:21
warmer [8] - 23:22,
 168:19, 169:10,
 169:12, 178:17,
 220:18, 257:25,
 291:6
warming [4] - 254:2,
 255:15, 256:18,
 428:5
warms [1] - 171:23
warmth [2] - 178:19,
 178:22
warmup [1] - 72:9
warned [6] - 256:6,
 256:8, 256:10,
 256:24, 258:7, 260:4
warning [1] - 23:15
warranted [2] -
 210:16, 355:1
Washington [3] -
 2:21, 3:4, 3:22
washy [2] - 324:20,
 324:21
waste [1] - 242:15
wasting [1] - 442:20
watch [4] - 283:6,
 283:16, 379:1,
 406:17
watching [1] - 128:17
water [4] - 55:17,
 55:19, 407:24
waterlogged [1] -
 407:22
wave [1] - 82:23

ways [3] - 82:11,
 419:1, 438:10
weather [7] - 16:18,
 55:6, 55:9, 68:21,
 69:17, 70:5
Wednesday [1] -
 133:14
week [8] - 49:14,
 77:20, 79:20,
 123:11, 133:4,
 142:12, 330:20,
 441:25
weeks [11] - 54:3,
 54:4, 55:13, 69:10,
 76:2, 76:3, 76:9,
 117:12, 134:23
weigh [2] - 40:17, 42:7
weight [1] - 14:2
weighted [1] - 423:18
weird [1] - 393:16
Weiss [35] - 100:16,
 100:22, 109:4,
 110:2, 113:1, 113:6,
 123:18, 138:11,
 261:14, 262:14,
 263:13, 263:14,
 264:17, 264:23,
 267:5, 268:7,
 270:16, 271:9,
 278:21, 280:11,
 280:20, 284:19,
 285:8, 300:24,
 315:6, 327:5, 347:6,
 348:8, 348:23,
 357:25, 384:9,
 406:6, 407:4, 408:9,
 408:17
WEISS [1] - 3:15
welcome [2] - 6:6,
 439:14
well-calibrated [2] -
 184:25, 426:21
well-known [1] - 48:11
Wells [118] - 8:19,
 8:25, 10:3, 10:7,
 11:4, 11:5, 15:4,
 16:5, 16:8, 17:6,
 20:2, 20:9, 22:21,
 25:21, 26:16, 29:20,
 30:17, 30:18, 31:25,
 32:7, 32:14, 32:21,
 33:11, 33:14, 33:19,
 38:19, 39:9, 40:5,
 40:25, 41:10, 41:18,
 41:22, 42:9, 42:21,
 43:4, 44:7, 48:16,
 52:9, 61:19, 62:2,
 62:4, 64:4, 66:6,
 66:8, 66:14, 78:5,
 79:18, 81:22, 83:4,

83:15, 84:10, 86:2,
 89:17, 91:11, 91:20,
 91:24, 91:25, 94:9,
 94:13, 107:8,
 107:11, 108:25,
 110:5, 111:14,
 117:20, 136:9,
 136:19, 136:20,
 140:12, 140:16,
 149:21, 176:16,
 177:10, 243:7,
 243:13, 243:20,
 243:24, 244:3,
 244:7, 244:13,
 244:21, 245:4,
 250:19, 252:22,
 260:22, 261:9,
 261:15, 263:3,
 266:7, 266:10,
 266:14, 268:6,
 268:14, 269:22,
 271:2, 271:15,
 278:21, 284:18,
 287:24, 291:13,
 294:13, 295:13,
 314:10, 318:6,
 322:2, 324:11,
 333:18, 337:15,
 340:21, 348:7,
 348:10, 348:24,
 406:5, 413:11
wells [19] - 10:12,
 11:8, 14:25, 15:9,
 20:4, 76:1, 87:24,
 92:5, 100:12, 110:1,
 118:2, 141:4,
 227:13, 261:1,
 261:11, 263:12,
 264:18, 264:24,
 347:25
WELLS [2] - 4:10,
 5:18
Wells' [2] - 11:9, 62:16
wells' [2] - 8:23,
 117:12
Wells's [1] - 265:24
wells's [1] - 337:13
wet [25] - 55:6, 171:8,
 178:20, 179:4,
 190:3, 190:4, 233:2,
 233:3, 235:21,
 235:23, 235:24,
 237:8, 289:9, 367:4,
 383:3, 383:15,
 384:21, 386:18,
 386:22, 386:23,
 387:3, 387:6, 422:9
wetness [16] - 237:14,
 238:16, 290:10,
 329:11, 360:22,

362:25, 367:4,
 381:11, 382:21,
 383:6, 383:25,
 386:15, 387:8,
 387:9, 406:15,
 407:18
wetted [2] - 383:16,
 383:18
wetter [7] - 178:16,
 236:23, 384:25,
 385:15, 387:13,
 387:18, 407:19
whack [1] - 295:9
WHARTON [1] - 3:15
Wharton [1] - 263:13
what-if [2] - 180:20,
 180:22
whereas [3] - 181:20,
 335:5, 370:2
white [1] - 420:21
whole [19] - 17:13,
 43:3, 51:4, 51:5,
 89:10, 220:20,
 233:16, 233:17,
 237:2, 284:21,
 288:12, 298:9,
 298:15, 317:20,
 329:24, 336:11,
 350:5, 396:23,
 420:10
wholly [1] - 10:6
wide [4] - 152:10,
 153:16, 345:22,
 346:14
wife [1] - 43:16
wildly [1] - 393:16
willing [6] - 11:7,
 99:19, 225:12,
 225:15, 226:18,
 290:3
Wilson [4] - 296:13,
 299:11, 376:21,
 377:3
win [2] - 48:6, 74:2
winded [1] - 284:16
window [9] - 392:17,
 404:12, 404:23,
 404:25, 405:19,
 405:21, 405:23,
 408:12, 409:10
winner [3] - 152:16,
 188:21, 330:15
WINSTON [1] - 3:8
wishy [2] - 324:20,
 324:21
wishy-washy [2] -
 324:20, 324:21
withdrawn [1] -
 138:10
withheld [2] - 14:23,

15:5

WITNESS [104] -

49:17, 53:1, 54:14,
54:17, 54:22, 56:2,
56:11, 59:15, 59:18,
60:17, 60:20, 60:23,
61:1, 61:14, 61:17,
66:1, 66:3, 67:2,
68:17, 69:15, 69:18,
69:23, 70:6, 70:21,
70:25, 71:3, 71:10,
71:13, 72:10, 74:23,
80:13, 80:17, 88:11,
88:22, 88:25, 89:4,
89:16, 99:23,
105:15, 109:23,
117:5, 117:8,
117:10, 117:15,
117:18, 117:24,
118:3, 122:21,
124:17, 125:23,
127:25, 128:4,
133:12, 133:18,
136:10, 137:13,
137:15, 137:18,
146:3, 146:6, 146:9,
146:13, 146:15,
146:17, 146:21,
146:24, 147:4,
147:9, 147:14,
147:18, 148:1,
155:20, 155:25,
156:6, 168:10,
168:17, 168:25,
170:11, 170:16,
170:19, 170:24,
177:9, 178:3, 180:4,
180:12, 180:15,
180:18, 180:22,
189:22, 225:21,
230:5, 252:4,
265:22, 271:25,
298:9, 318:5,
397:12, 398:5,
398:8, 403:25,
409:13, 409:19,
439:12, 449:14

witness [32] - 29:15,
47:2, 47:5, 100:2,
136:8, 139:7,
148:22, 150:7,
150:8, 153:6,
198:23, 226:4,
227:20, 239:6,
260:23, 260:25,
261:2, 261:3, 267:7,
279:20, 292:9,
292:10, 341:16,
341:18, 342:17,
345:4, 411:16,
411:18, 439:13,

439:15, 454:5,
454:18**Witness** [2] - 5:14,
5:21

witnesses [21] - 8:22,
20:12, 20:14, 20:15,
29:22, 30:10, 38:2,
226:24, 227:7,
227:10, 227:16,
289:13, 289:18,
292:11, 293:15,
297:19, 302:21,
314:18, 325:18,
325:22, 326:9

WITNESSES [4] - 4:8,
4:13, 5:13, 5:20**won** [1] - 48:8

word [12] - 42:17,
44:22, 263:4, 274:8,
274:20, 308:19,
312:21, 312:22,
328:16, 339:9,
452:16, 452:17

words [18] - 17:21,
43:10, 61:9, 66:9,
72:14, 87:23, 96:20,
208:22, 262:19,
274:10, 285:17,
303:8, 324:19,
343:10, 380:23,
398:24, 399:5,
447:19

wordsmithing [1] -
269:12**wore** [1] - 400:13

works [6] - 12:8,
195:21, 195:24,
302:1, 302:2, 345:22

world [9] - 15:25,
43:14, 201:18,
282:25, 284:7,
330:8, 411:8,
428:16, 433:23

worn [1] - 400:14**worried** [1] - 85:16**worries** [2] - 94:24,
95:9**worse** [1] - 43:12

worth [5] - 349:23,
395:21, 415:9,
425:21, 426:7

wow [1] - 192:23

write [10] - 94:24,
231:19, 312:15,
313:23, 313:24,
318:8, 335:19,
340:8, 391:4, 411:10

writes [7] - 62:20,
78:20, 79:11, 92:11,
92:15, 299:24, 330:6

writing [6] - 161:20,
232:18, 265:19,
269:2, 277:18, 329:9

written [15] - 92:11,
239:10, 241:22,
247:23, 247:24,
252:14, 263:4,
263:6, 268:17,
268:20, 289:15,
293:18, 299:8,
313:18, 336:6

wrote [34] - 18:21,
18:22, 66:8, 78:25,
79:5, 85:21, 94:18,
95:8, 95:12, 191:14,
242:4, 263:22,
273:20, 278:4,
278:5, 289:3,
289:19, 290:6,
291:14, 299:21,
300:8, 300:10,
302:9, 306:15,
306:17, 306:25,
307:1, 325:6, 330:8,
374:1, 374:5,
392:12, 408:6, 408:7

X**XI** [2] - 350:15**Y**

Yale [6] - 15:23,
150:18, 150:20,
150:21, 150:22,
196:23

year [12] - 22:14,
23:10, 47:16, 54:25,
71:16, 129:6, 129:8,
152:15, 152:25,
153:9, 261:17,
378:20

years [32] - 24:2,
43:18, 49:19, 69:15,
70:20, 75:12, 75:13,
75:19, 82:14,
116:13, 121:1,
129:1, 142:18,
150:22, 150:23,
153:8, 154:1, 156:7,
196:5, 196:12,
196:14, 236:11,
304:17, 378:20,
378:21, 378:25,
380:6, 412:6,
412:14, 412:16,
440:6

years' [1] - 379:2

Yee [10] - 105:11,
111:6, 139:8,

312:21, 313:24,
333:9, 333:16,
336:18, 337:6, 338:9

YEE [2] - 4:3, 4:5**Yee's** [1] - 108:21**yesterday** [2] - 27:24,
275:19**yield** [2] - 220:15,
222:4**yields** [1] - 403:12

York [30] - 1:16, 2:4,
2:11, 2:12, 2:16,
3:10, 3:16, 6:1, 24:3,
47:7, 61:13, 150:10,
227:22, 261:5,
280:19, 280:24,
330:6, 330:19,
345:5, 411:20,
439:17, 457:8

YORK [1] - 1:24**young** [1] - 284:25

yourself [11] - 8:4,
27:6, 27:8, 94:22,
95:13, 95:24, 96:1,
145:1, 245:1,
311:11, 324:2

yourselves [1] - 8:22**Z**

zealously [3] - 271:20,
323:6, 323:9

zero [8] - 58:19, 58:21,
170:14, 170:17,
173:1, 389:22,
397:23, 399:3